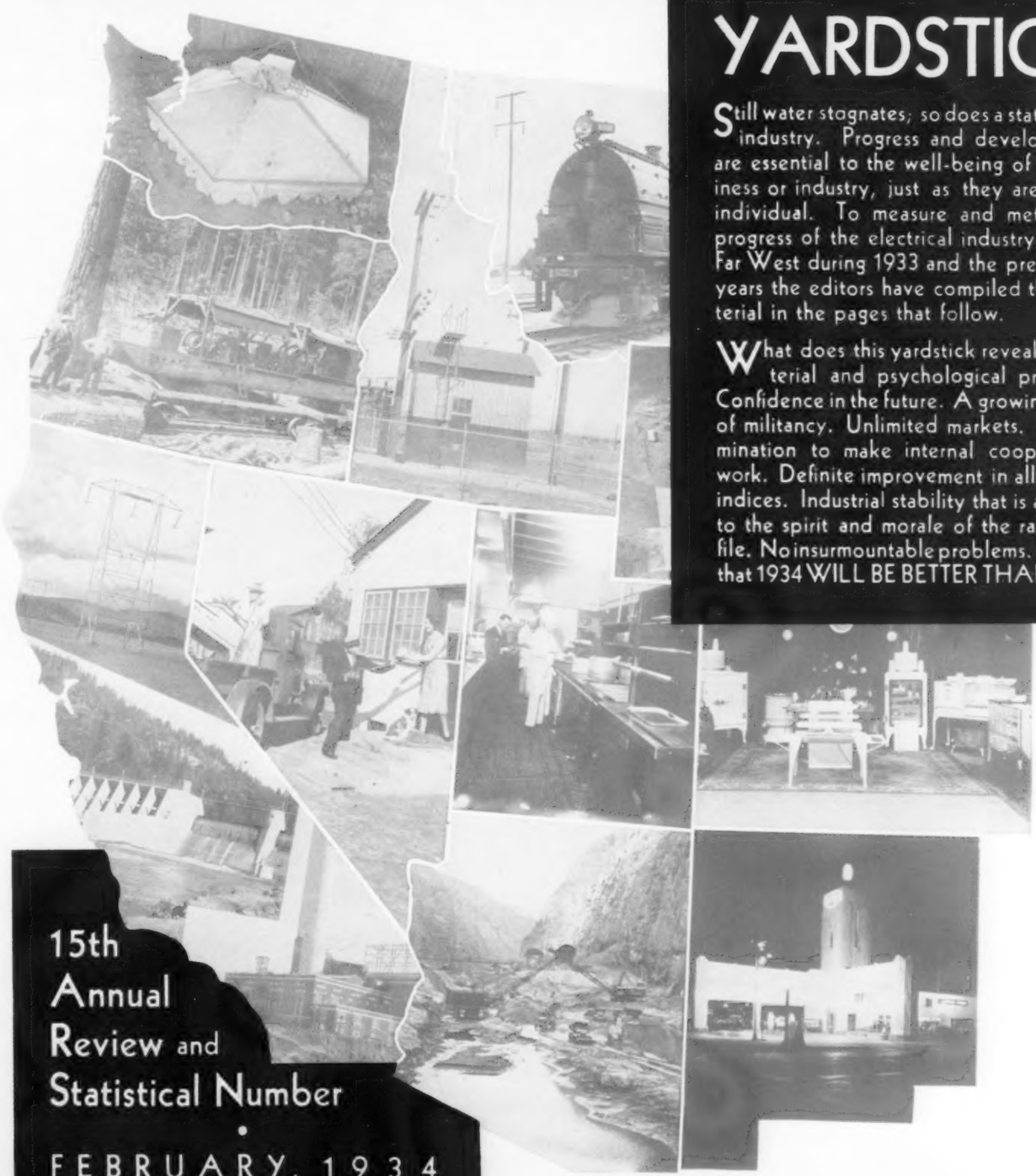
ELECTRICAL WEST



YARDSTICK

Still water stagnates; so does a stationary industry. Progress and development are essential to the well-being of a business or industry, just as they are to an individual. To measure and meter the progress of the electrical industry of the Far West during 1933 and the preceding years the editors have compiled the material in the pages that follow.

What does this yardstick reveal? Material and psychological progress. Confidence in the future. A growing spirit of militancy. Unlimited markets. Determination to make internal cooperation work. Definite improvement in all factual indices. Industrial stability that is a credit to the spirit and morale of the rank and file. No insurmountable problems. Finally that 1934 WILL BE BETTER THAN 1933

15th Annual Review and Statistical Number

•

FEBRUARY, 1934
McGraw-Hill Co. of Calif.
Twenty-Five Cents per Copy

Edison's "New Deal" Success Is An Index of Business Improvement

From every community in Edison territory has come praise for Edison's New Deal for the Purchaser, and for Edison's cooperative program to stimulate appliance sales.

Increased buying has shown conclusively that no longer do we need to countenance a continuing depression.

Business is fighting the good fight in most quarters—and we are working toward the light. Merchants handling electrical appliances in this area tell us they see steady, consistent improvement.

Without exception they are confident that 1934 will prove a highly profitable and progressive year. Wholeheartedly they are pledged to the aggressive plans now being successfully carried out.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

ELECTRICAL WEST (with which is consolidated The Journal of Electricity), February, 1934, Vol. 72, No. 2. Published monthly by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Printed in U.S.A. Subscription rate in U.S. and U.S. possessions, $2 per year; Canada, $2.50 including duty; all other countries $3 gold (thirteen shillings). Single copy, 25c. Copyright 1933. McGraw-Hill Company of California.

the New ELECTRICAL WEST

Volume 72 — No. 2
for February, 1934

Copy Cats

GAS range folks are becoming as nifty imitators as are the Japanese, who have long maintained the title as the world's champion copy cats. Just let an electrical range change its shape, bring out a single new feature, a new design of frame, top, oven, timing, or what not, and lo, out comes a gas imitation "even if it kills them." We must hand it to the gas men for ingenuity, though. Just look at one of their imitation automatic ranges, and see what a Rube Goldberg mass of fancy piping, valves, and what-nots it takes to make the electric clock (yes, they have no gas clocks yet) turn the oven on and off as compared with the simple little electrical thermal switches which do the trick so neatly and without fuss or feathers on an electric range.

There's an old saying—maybe it was an advertising slogan of an earlier day —that still fits, and the public ought to be reminded of it.

"Often imitated, but never equalled."

▼

More About Yardsticks

LIKE all people who take their work seriously, we in the electrical industry sometimes get too close to the forest to get a clear perspective of the trees. Vision becomes short-ranged, distorted. This applies to the problems of disposal of the tremendous power outputs of those "yardsticks," Boulder Dam, Bonneville, Kennett and Grand Coulee.

Taking a long range view, an editorial study has been made of the effect of these projects on power output over a long period of time—the period being based upon the schedule of installation of capacity as worked out at present. Thus viewed the yardsticks no longer appear disproportionate. The job is one of correlation and sales, and the bogeys to be set up are not out of line with past performance. Read this study on page 23 carefully. Then see if you agree with the conclusions. What looks like an immense power surplus may turn out to be a shortage.

▼

"The New Approach to Lighting" must be effective sales technique. The vice-president and general manager of one Pacific Coast power company took home a sightmeter "just for fun." The demonstration of this little gadget which he gave his wife cost him just $48 for new lighting equipment. "It has too much red scale," he says with a laugh.

The Editors Think Out Loud

▼

Gander Sauce

ANONYMOUS letters, as a rule, just do not get printed, but the editors have received one which, if the author was too timid to sign, the editors will sign themselves. It expresses our sentiments exactly; in fact suggests that it would be a great, a noble idea to start a nationwide movement along the lines it intimates. Read on:

San Francisco, Calif.
Jan 15, 1934.

Editor of ELECTRICAL WEST:

I have read with more than usual interest your January edition, particularly the editorial page. What is sauce for the private utilities ought to be sauce for the private newspapers as well; in fact, why could not Mr. Hearst reduce the price of his newspaper a few cents at least. He is making the loudest holler for reduced gas and electric rates and for Government ownership. Perhaps a Government owned Examiner might be able to run without profit and give the subscriber the benefit instead of the holders of 7% Hearst stock. A newspaper is a necessity—everyone will admit that all persons are entitled to read what is going on in the world; but it must also be admitted that a good many persons have been obliged to discontinue their newspaper subscription because they could not afford to pay for it. All during this depression there has been not one cent reduction in the price of any newspaper in San Francisco. A little competition from a newspaper subsidized by the government, with the taxpayer's money (Mr. Hearst's included) might force cheaper papers all around. Someone might even bring about a state or national election on the subject; promise that the project would be financed by the Federal government — partly by grant and partly by 4% loan; and thus it would cost the people nothing; just the same as the $170,000,000.00 project was advertised to cost the people little or nothing.

If newspapers were government owned and sold at cost (where's the measuring stick), a lot of us would be able to afford more than one daily paper, and so such a project would be for the benefit of the greatest number of people. The San Francisco News is a nice little paper that likes to hit the stockholders by reducing utility rates. No doubt they would welcome a little government newspaper competition and regulation. They might even be willing to sell out the cream of their business, say, the San Francisco city subscriptions, and just keep up their country subscribers.

ANN O. NEMUS.

P.S. Our daily papers might even like a 3% tax on gross revenue.

▼

Creators

INVENTORS may be a queer breed, with heads full of notions, but it is significant that the fruits of some "crazy" dream have nourished most of us in this electrical industry, rooted as it is in invention and creativeness, for lo, these many years. And when the old things have all been tried and found inadequate, time and again it has been a "fool invention" that swung us all back into life and activity. Think back over the commercial epoch that radio, the electric light, the automobile, airplanes have created. And have respect for the inventor. If his brain antennae are more sensitive, and his cerebral tuning more accute than ours he may find the wave length of new and wonderful things. Many's the manufacturer or salesman who has kicked himself all around the place because he was too busy or snooty to have grasped the significance of some trivial flash which later proved to be a vein leading to a vertitable bonanza. Don't ever be too sure that a new idea won't be a wow once it gets momentum.

— Worth Reading

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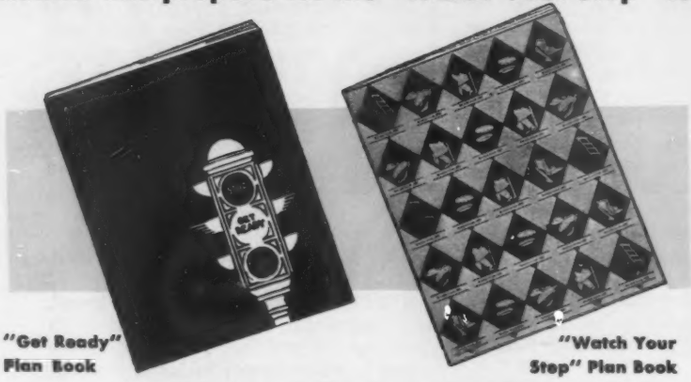
WATCH YOUR STEP!

ANOTHER TIMELY HOTPOINT CAMPAIGN

Hotpoint Announces a Spring Campaign aimed to catch people who must buy a Range this year.

Introducing a new principle in range selling . . a "Get Ready" campaign to speed up sales in slow months and prepare for the "Watch Your Step" consumer campaign for most active selling months



"Get Ready" Plan Book

"Watch Your Step" Plan Book

"Get Ready" Activities

Get ready for a big range year. Start selling now. Hotpoint's plan covers, in detail, the following steps:

1. **Clean House.** Ask about Hotpoint's plan for selling out-of-date and repossessed ranges during "dull" months.
2. **Modernize.** Hotpoint offers a specially priced range and a plan for replacing or reconditioning out-of-date ranges.
3. **Sell and Train Your Employees.** Educate employees in advantages of electric ranges. Sell them. Train salesmen to get maximum business.

All of these steps are "Get Ready" activities. They help you clean house, produce business immediately and stir up interest and attention to a new high pitch.

• • •

When your most active range selling season arrives you can be in full swing. Hotpoint's plan eliminates lost motion.

"Watch Your Step" Campaign

This main consumer campaign for busy selling months utilizes features found so successful in Hotpoint's former "Look Twice" campaign. The "Watch Your Step" Campaign is a spring and summer sales drive designed to reach consumers who are going to buy a new range this year. There are 3,000,000 obsolete ranges that should be replaced in the next few months. The way people have been buying other major appliances is positive proof of a greatly increased public buying power and buying spirit. Hotpoint's plan is aimed to turn this buying toward electric cookery — the greatest *natural* load builder for utilities.

"Back to Chicago" Retail Sales Contest

As a special incentive to range salesmen, Hotpoint offers a "Back to Chicago" sales contest. Prizes consist of trips to the 1934 World's Fair at Chicago.

ELECTRIC RANGES **Hotpoint** WATER HEATERS

EDISON GENERAL ELECTRIC APPLIANCE CO., INC., 5612 W. TAYLOR ST., CHICAGO

GET READY FOR A BIG RANGE YEAR

1934 calls for sure-fire sales activity. Whether you plan to sell or rent ranges your customers deserve the best. When you feature Hotpoint, you not only offer the finest range which modern manufacture can produce—but you have a most efficient plan for selling. In addition, you have the services and co-operation of a thoroughly trained group of range selling specialists and home economists

THE CHICAGOAN, Hotpoint's style leader, is equipped with famous hi-speed Calrod units and economical Thrift Cooker. Hi-speed Calrod is establishing new records in electric cookery for speed, economy and durability. You owe it to yourself to get the very latest facts about Calrod.

Hotpoint District Managers Will Co-operate With You

C. P. Myrick, 38 Chauncy Street, Room 1206, Boston, Mass.

M. H. Beekman, 416 West 13th Street, New York City

W. T. Christy, 203 Red Rock Bldg., Atlanta, Ga.

W. H. BonDurant, 5600 W. Taylor

L. E. Buxton, 5600 W. Taylor Street, Chicago, Ill.

H. K. Dewees, General Electric Supply Corp., 1801 N. Lamar Street, Dallas, Texas

Clyde Allen, 846 Russ Bldg., San Francisco, Calif.

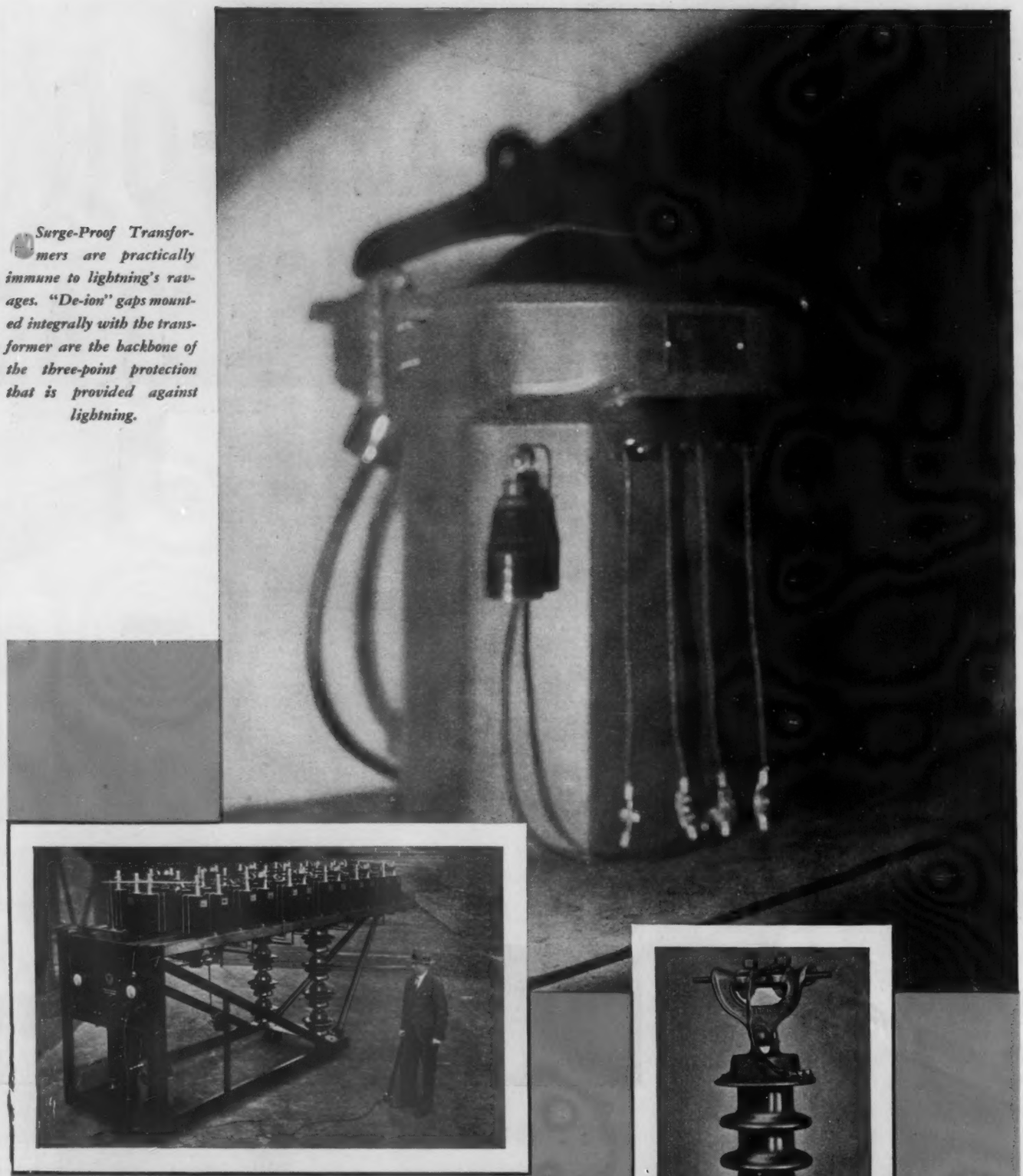
J. C. Platt, 2032 Second Avenue,

A. W. Peterson, General Electric Supply Corp., 1411 Walnut Street, Kansas City, Mo.

B. E. Rowley, 1015 Continental Bank Bldg., Salt Lake City, Utah

C. N. Willard, 720 Union League Bldg., Los Angeles,

Surge-Proof Transformers are practically immune to lightning's ravages. "De-ion" gaps mounted integrally with the transformer are the backbone of the three-point protection that is provided against lightning.



A portable Surge Generator for determining weak points in system insulation. Tests made at convenient times with this generator determine where repairs should be made to prevent serious service outages.

Right—*Distribution-type Autovalve Arrester. It provides protection against lightning for existing transformer installations when connected for Three-Point Protection.*

SURGE • PROOF TRANSFORMERS

Reduce Operating Costs

SURGE-PROOF Transformers effect substantial savings in operating costs . . . savings that are vitally important in view of the present urgent necessity to compensate for higher taxes and lower rates.

These transformers are practically immune to the ravages of lightning. Installations in various sections of the country, where lightning is most severe, are constantly proving their ability to lower the losses caused by lightning.

Further savings result from the advanced design of the Surge-Proof Transformer which simplifies storage, transportation, and installation. Among its outstanding features are:

- Removable high and low-voltage bushings.
- Bushings protected from breakage by overhanging cover.
- Splash-proof construction which facilitates moving and storing.
- Anti-oil-siphoning joints.
- Light weight that lowers freight charges, lessens the cost of installation, and reduces pole strain.

Existing installations of transformers can be protected with Autovalve lightning arresters connected to give Three-Point Protection. To safeguard your system still further, use the Westinghouse Surge Generator to test system insulation at convenient times.

Let us send you complete information about this equipment. Mail the coupon.

Westinghouse

Quality workmanship guarantees every Westinghouse product

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.

Gentlemen: Please send the booklets that I have checked.

Cat. 46—Surge-Proof Distribution Transformers

Cat. 38—Surge Protection

Cat. 38-280—Surge Generators

Name .....

Company .....

Address.....T 79715

City.....*State*.....EWI 2-34

PROGRESS thru Untiring RESEARCH

U R C and PEERLESS. Highly developed weatherproof wires and cables.

THERMAX. Heat resistant rubber insulation.

TYPE H and OIL FILLED CABLES. Maximum mechanical and electrical efficiency.

SUPER SERVICE. Flexible rubber jacketed wires and cables for severe service.

TYPE HH HOLLOW CONDUCTOR. An all-copper low loss conductor for high tension transmission lines.

TRENCHLAY. Non-metallic sheathed cable for direct earth installation.

GENCORONE. An oil base, corona resistant insulation.

GENRITE. Highest grade of dry mineral base rubber insulation.

THIOKOL SHEATH. An oil and corrosive resistant wire and cable covering.

Continuous product improvement has been the foundation of our progress for more than 50 years. The achievements of General Cable Research in pioneer development work are outstanding in the industry. Every General Cable product, from finest magnet wire to heaviest cable, in its present standard specification, embodies the ultimate technical advance resulting from scientific research.

GENERAL CABLE CORPORATION

LOS ANGELES · SAN FRANCISCO · SEATTLE

Where seconds count

THEY USE RELIABLE WESTON *PHOTRONIC (PHOTO CELL) EQUIPMENT

Here are the most unique doors in any train terminal in this country. They open and close—automatically—several million times each month. Not a human hand touches them. A PHOTRONIC cell and a light beam are the sole activating source. What a comfort and convenience to travelers . . . what a help in facilitating movement of crowds.

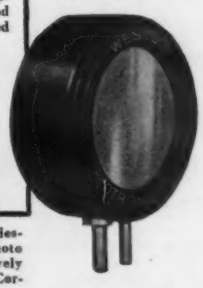
In train terminals, as well as in other industrial and commercial activities where flawless operation is vital, *reliable* photo-cell control equipment must be used. And Weston PHOTRONIC equipment *is* reliable, because of the characteristics of the Weston cell, the simplicity of the circuit, and the ease of installing and maintaining PHOTRONIC control equipment.

Whether your problem is opening doors, counting, sorting, or controlling operations by color or density changes, Weston PHOTRONIC control should be considered. It is simple, reliable and economical. Its outstanding advantages are listed at the left. For further information write . . . Weston Electrical Instrument Corporation, 577 Frelinghuysen Avenue, Newark, N. J.

OUTSTANDING FEATURES

1. No AUXILIARY POWER—PHOTRONIC (dry-type) cells transform light energy directly into electrical energy.
2. No AMPLIFICATION—High current output of PHOTRONIC cells activate sensitive relays without complicated amplifiers.
3. UNLIMITED LIFE—PHOTRONIC cells do not deteriorate or wear out—deliver a constant output.
4. EASY TO INSTALL—PHOTRONIC equipment shipped ready to install and operate. Control box can be located remote from cell.
5. SPECTRAL RESPONSE—Like that of the human eye, PHOTRONIC cells accurately control by color and density changes.
6. LOW COST—The initial cost is low and maintenance practically negligible.

These doors, manufactured and installed in the Pennsylvania Terminal, New York City, by The Stanley Works, New Britain, Conn., are operated by Weston PHOTRONIC photo-cells and relays.



*PHOTRONIC—a registered trade-mark designating the photoelectric cells and photo electric devices manufactured exclusively by the Weston Electrical Instrument Corporation.

WESTON *Instruments*

PACIFIC COAST REPRESENTATIVES

Eicher & Bratt,
263 Colman Bldg.,
Seattle, Wash.

C. F. Henderson,
Call Bldg.,
San Francisco, Calif.

Elec'l Engr. Sales Co.,
Subway Terminal Bldg.,
Los Angeles, Calif.

CHROMALOX
RANGE MODERNIZING CAMPAIGNS
Steadily Increase

THE DEALERS AND POWER COMPANY IN THIS TOWN ARE MODERNIZING OLD RANGES WITH CHROMALOX SUPER-SPEED "TOP BURNERS"
LET'S SCRAM, OILY! - WE'D ONLY BE WASTING OUR TIME - THE ELECTRICAL FELLOWS IN THIS TOWN ARE WIDE AWAKE!
COMPETITIVE FUELS

—**BECAUSE** hundreds of campaigns conducted by utilities and dealers in the past three years have proved that the one sure way to *NEW* range sales is to modernize old ranges with Chromalox top-burners. This has helped eliminate all dissatisfaction among range owners, making them boosters for electric cookery —and there's money in it for every one concerned. Mail the coupon for complete details!

THAT'S what a Chromalox campaign is—a detour sign to salesmen of all other cooking fuels. It tells them you are re-building customer satisfaction in electric cookery . . . modernizing old ranges with Chromalox *Super-Speed* Replacement Range Units . . . holding on to every single cooking customer.

Why let other fast fuels steal away your cooking load? Certainly those electric ranges that have been on your lines for five years and more *are* SLOW. Certainly those customers are dissatisfied after hearing salesmen talk about *cooking speeds* and *obsolescence*. What if those old customers can't afford a new electric range? You still can keep them satisfied by modernizing the old range and bringing it up to 1934 speed and efficiency.

Try this and see: Pick out a few customers with out-dated ranges. Send a salesman with a screw driver and a Chromalox *Super-Speed* units to replace the old units with new ones. A single Chromalox unit will do more selling than any salesman. It not only will sell itself, but it will sell all the other units too. And it will re-sell the customers on electric cookery and electric speed.

Here is what a Chromalox Modernizing campaign has done for hundreds of other companies:

1. Saved the cooking load; 2. Protected capital investment; 3. Made old range owners satisfied range users; 4. Built load by increasing use; 5. Made new range sales easier.

Start a range campaign and get just such help as only Chromalox can give. Old, slow ranges are prospect killers. Don't let a dissatisfied customer ruin a sale. Get your copy of *"How to Sell More Ranges."* It's a tried and tested plan already adopted by hundreds of power companies and dealers. Just send the coupon. No obligation, of course.

SPEED-UP! OLD RANGES
WITH CHROMALOX SUPER-SPEED "TOP-BURNERS"

MAIL TODAY WITH YOUR LETTERHEAD

Write to nearest Representative or
EDWIN L. WIEGAND CO.,
Manufacturers of Chromalox Electric Heating Units
7540 Thomas Blvd., Pittsburgh, Pa.

Without obligation, please send us a copy of "How to Sell More Ranges" complete with facts and figures, and showing us how to put this plan to work to make money for us.

☐ Send us catalogues about Chromalox-equipped ranges.
(Please fill in)—There are approx. ..... electric ranges in the territory we serve.

Name.....

Position.....EW234

NRA

QUICK SHIPMENTS from
Montgomery Brothers—San Francisco, 61 Fremont St.; Los Angeles, 912 E. Third St.; Seattle, 911 Western Ave.; Portland, 524 S.W. Pine St.
The Peterson Company—1921 Blake St., Denver, Colo.

"The Last Word"

in Feeder Regulators

12 KVA—50 Amps
± 10% on 2400 Volts
with Control Cover Removed

The Allis-Chalmers Feeder Voltage Regulator can be furnished for regulating distribution feeders of any circuit voltage—for single phase or three phase operation—for any frequency—for any capacity—for indoor or outdoor application—with oil-immersed current-limiting reactors built integral if desired—for non-automatic or automatic control with or without line-drop compensation.

SOME FEATURES OF THE TYPE AFR FEEDER REGULATOR:

- Smooth operating curve—with the 32 —⅝% steps provided, a voltage curve as smooth as with any other means of regulation is obtainable.
- Low first cost.
- Low installation cost. Built-in sources of potential and current for motor relay and compensator are provided. The unit is shipped in oil.
- Low core and copper losses.
- Low exciting current.
- Quiet operation.
- Strong mechanical construction of windings.
- Roof-type bushings, or wiping sleeves for cable entrance, as desired.
- High impulse strength—insulation coordinated with the bushings.
- Nothing to lubricate or adjust except the contact-making voltmeter. All moving parts of the mechanism under oil.
- No phase displacement with 3-phase units.
- Can be designed to regulate distribution feeders of any circuit voltage.

The AFR Regulator can fill needs for voltage regulation never heretofore economically feasible. Ask the nearest Allis-Chalmers district office for specific information.

ALLIS-CHALMERS MANUFACTURING CO.
MILWAUKEE, WIS., U.S.A.

ALLIS-CHALMERS
FEEDER VOLTAGE REGULATORS

Lighten the load on your Sales Department—

PUT MORE ON YOUR LINES

With today's added costs you can't afford to increase expenses still further by putting money and effort behind hard-to-sell merchandise.

And as far as electric refrigerators are concerned, we believe that Frigidaire stands head and shoulders above all others in its appeal to buyers and, consequently, its ability to put more load on your lines.

We have good reasons for this belief. First, because there are a million more Frigidaires in use than any other make of electric refrigerator. And second, because Frigidaire's sales record last year was outstanding in the refrigeration industry.

The Frigidaire line, including a wide range of household models, beer and bar refrigeration, and all types of commercial and air conditioning equipment, makes the sales possibilities practically without limit. And we help you make the most of those possibilities. From experience we appreciate the value of the utility company in developing Frigidaire business. And we understand the utility company's problems—including the needs for merchandise profit and extra load to meet today's conditions.

When you sell Frigidaire you get the full benefit of our Individualized Sales Service—sales plans individually adapted to your individual needs. Public Utilities Division, Frigidaire Sales Corp., Dayton, O.

Frigidaire

A GENERAL MOTORS VALUE

KILOWATT-HOUR SALES INCREASED 10.8% BY NEW APPROACH TO SELLING LIGHTING

The Wisconsin Power and Light Company's experience at Beaver Dam, Wisconsin, strikingly demonstrates the ability of the *New Approach to Selling Lighting* to build commercial load at low cost. What this company accomplished is outlined in the following letter:

"The accounts of two full meter books, including 202 commercial lighting customers, were analyzed after having been covered by a lighting representative using the General Electric Lighting Kit. Of the 202 customers, 69 were not called upon, for various reasons. Of the remaining 133: 21 customers added a total of 10.94 kilowatts of connected load which at $50 per kilowatt per year represents an EAR (Estimated Annual Revenue) of $547.

"112 customers saw the demonstration but made no addition to connected load. Approximately 100 customers were given a complete demonstration. Approximately 12, for various reasons, were not given the complete demonstration. 112 customers used 1210 kilowatt-hours in September, 1933, over September, 1932. This increased use seems logically to be attributed to demonstration.

"Assuming that September is an average month, 12 months' consumption would represent an increase of 14,520 kilowatt-hours, which, at 5c per kilowatt-hour, would amount to $726.

"Total results of the load building activity among the 202 customers would, therefore, be:

"EAR due to increased load	$547.00
EAR due to increased consumption	726.00
TOTAL	$1273.00

"Calls were made on a total of 321 customers in Beaver Dam costing $420 of direct sales expense, or $1.31 per call. The cost of making 133 calls on the 202 customers was $174 or a *cost per dollar of EAR of 13.7c.*

"During the period of August and September the kilowatt-hour consumption in the Beaver Dam district showed a decrease of 4.3% under the same period the previous year. The consumption for the customers who saw the demonstration increased their use 6.5%, or a net equivalent increase in a consumption of 10.8%."

The success of the *New Approach to Selling Lighting* in Beaver Dam is typical of the success it is meeting in all parts of the country. It provides a tangible demonstration that visually proves Better Light means Better Sight, and makes the New Science of Seeing a new force in selling. For complete information regarding the *New Approach to Selling Lighting,* write to the sales division which supplies you with lamps. General Electric Company, Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

MAZDA LAMPS

This G-E Kitchen Display is stepping up sales for the Arkansas Power & Light Co.

Pictured, is the complete General Electric Kitchen display in the sales room of the Arkansas Power & Light Co., at Little Rock, Ark.

NRA MEMBER U.S. "WE DO OUR PART"

THE General Electric Kitchen is now on display in hundreds of retail sales outlets from coast to coast. The kitchen pictured above in the sales room of the Arkansas Power & Light Co. at Little Rock, is attracting new attention from the public and also creating new interest on the part of Arkansas Power & Light Co. employees. "We find that the G-E Kitchen is stepping up sales for all G-E kitchen appliances," says P. C. Tucker, Arkansas Power & Light Co. commercial manager for the state, "and we not only expect but shall make 1934 our best year."

The modern method of merchandising major electric appliances is to put them in a setting that instantly creates attention, stimulates desire and *gets action.* The General Electric Kitchen, featuring the G-E Refrigerator, the G-E Range and the G-E Dishwasher, is now recognized as one of the greatest sales stimulators in the electric appliance field. No woman who has seen this beautiful all-electric kitchen will ever again be satisfied until she has one in her home. And the G-E Step-by-Step Plan of ownership makes it easy for her to fulfill that ambition.

General Electric is now adding new retail outlets in open territories. Write for details of the G-E franchise. General Electric Co., Specialty Appliance Sales Dept., Section DC2, Nela Park, Cleveland, O.

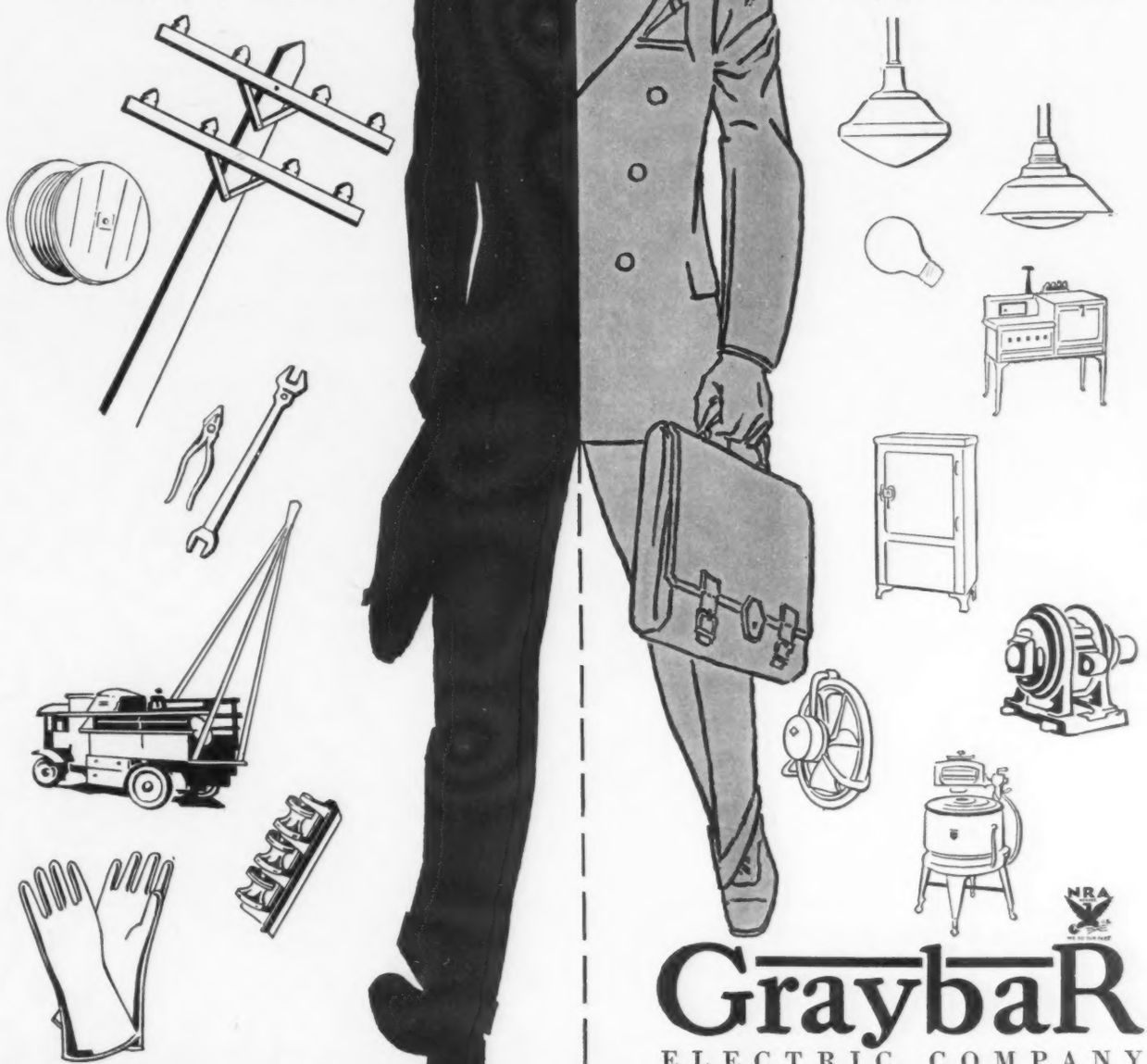
GENERAL ELECTRIC KITCHEN

TWO SIDES

to this selling job

The Graybar Salesman is a part of an experienced service of supply, started in the earliest days of the Power and Light Industry... Graybar service to utilities includes warehouse stocks and quick, intelligent service from 73 conveniently located warehouses . . . and a friendly understanding of your problems.

The Graybar Salesman also works in the interest of the Power and Light Industry by selling thousands of load building devices to home, office and industry. Lighting equipment, motors, radio, refrigeration, a complete line of electrical appliances, and other equipment are all included.



NRA

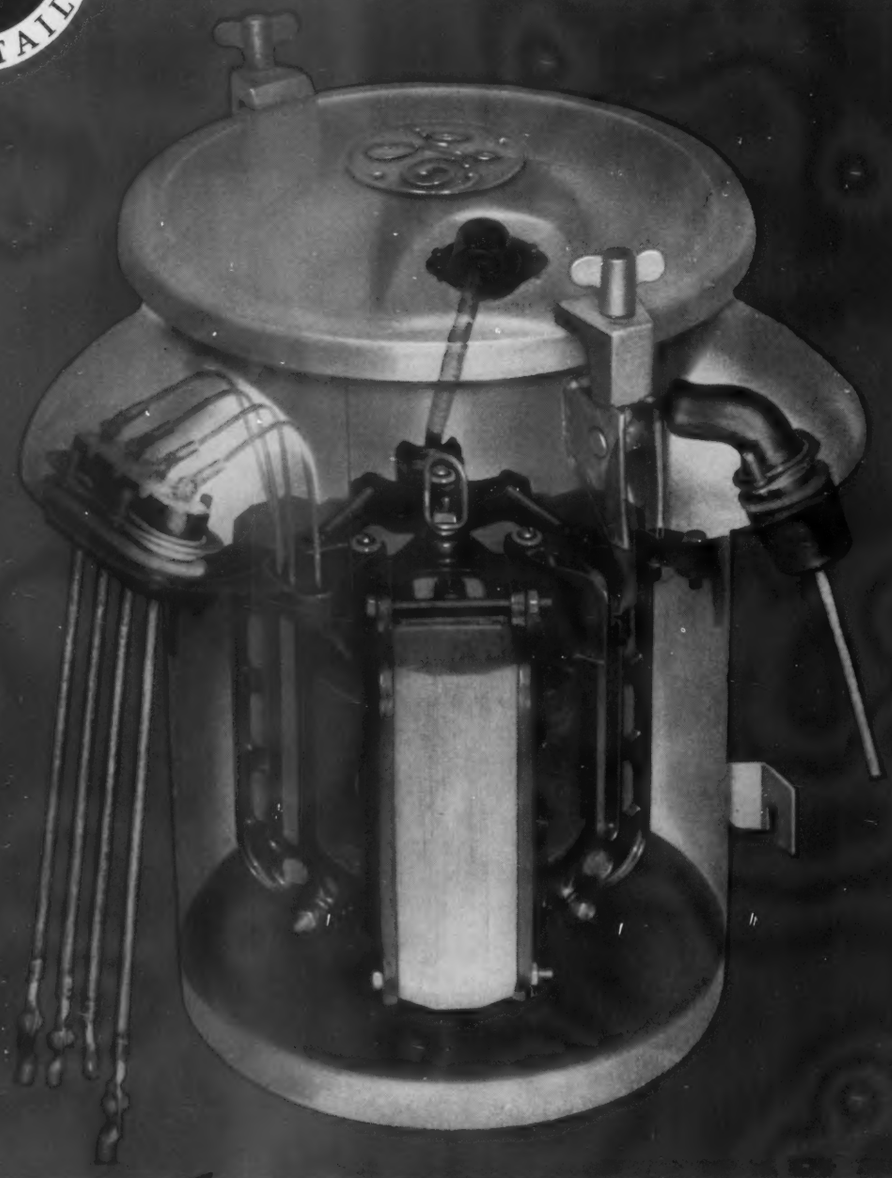
Graybar

ELECTRIC COMPANY

OFFICES IN 73 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BUILDING, NEW YORK, N. Y.

PERFECTION OF DETAIL

G-E DISTRIBUTION TRANSFORMERS



Specify "PERFECTION of DETAIL"

"The Colonel's Lady an' Judy O'Grady" may be sisters under the skin, but not so transformers. We're proud to bid for your business solely on what has been built under the skin of G-E distribution transformers: that is, Perfection of Detail.

NRA MEMBER U.S. WE DO OUR PART

300-6

GENERAL ELECTRIC

Choose Your Philosophy

TWO distinct schools of philosophy exist in the electrical industry today. One is provoked by four years of depression, by social change, political attack, discouragement. It is the doctrine of defeatism, of melancholy, of despair. The other is inspired by courage, hope, confidence and optimism. It is the doctrine of enterprise, of action, of initiative. So, like Hamlet, we say, "Look here, upon this picture, and on this, the counterfeit presentment of two brothers."

•

THE country is on its way up and out; the bottom of the depression has been passed. Employment is increasing. Purchasing power is advancing daily. Enormous government expenditures mean immediate increases in business for all industries. This, in turn, will start a growing cycle of prosperity, like a pebble tossed into a still pool. All economic indices are pointing upward and have been for several months. Prices are rising, stimulating more purchasing. Fundamental forces tending toward recovery are definitely in motion. NRA codes have promoted business and industrial security, stopped ruinous competitive practices and are bringing order out of the chaos of distribution. The threat of subsidized government competition with the utilities is subsiding, its purpose having been achieved. Currency stabilization is definitely on its way. Now is the time for redoubled energy on every front.

THE future is black; the country is headed for the dogs. Currency inflation is certain. Experiments with economic forces whose laws are unknown are invoking disaster. Defiance of the laws of supply and demand by curtailment of production is antisocial. Creation of re-employment by unwarranted and uneconomic projects is a virtual dole. Expenditure of $17,000,000,000 with no program of repayment, will only encourage wilder and wilder governmental spending. Future business profits are already mortgaged by future taxes. The security and stability of the light and power industry are threatened by subsidized government competition. Federal and state governments are lending a respondent ear and giving responsible places to utility-baiters. Government ownership is in the ascendency. Rates are being beaten down without regard to earnings or financial security. We might as well lay back and give up.

•

OBVIOUSLY both these philosophies cannot be right. The true picture of the future is probably down a middle course. As for ourselves, we lean toward the hopeful, confident, courageous doctrine. Why? Because the electrical industry has suffered no serious injury from four years of depression. Its goods, its services have been improved. New markets are available. Electricity still is essential to modern civilization. The industry still offers opportunity for reward. Its future is unlimited. We feel that the majority of men and women in the industry have sufficient faith in this business, as one executive put it last June, "to stay with it, and fight for it."

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Table I—Central Station Operations in 11 Western States, 1932 and 1933

Item	11 Western States 1932	11 Western States 1933*	United States 1932	United States 1933*	Per Cent 11 Western States of Total U. S.
Energy Generated (millions of kw.-hr.)	12,874	13,016	77,868	79,223	16.4
Energy Generated in Hydro Plants (millions of kw.-hr.)	11,185	11,311	31,877	32,795	34.5
Energy Generated in Steam Plants (millions of kw.-hr.)	1,689	1,705	45,991	46,428	3.8
Percentage of Total Energy Produced by Hydro	87.0	86.9	41.0	41.6	....
Gross Revenue from Sale of Energy	$245,000,000	$235,000,000	$1,980,000,000	$1,918,000,000	12.3
Operating and Maintenance Expenses†	89,000,000	86,100,000	833,600,000	810,500,000	10.6
Capital Expenditures (total)	49,600,000	.....	260,000,000	200,000,000	....
Capital Expenditures (generating plants)	9,500,000	.....	46,000,000	35,000,000	....
Capital Expenditures (transmission and distribution)	$37,400,000	.....	$199,000,000	$ 155,000,000	....

*Based on ten months' operations.
†Do not include interest, taxes, depreciation or sinking fund charges.

FIGURES of the year

EXAMINATION of 1933's figures on the light and power industry of the 11 Western states reveals one gratifying fact: after three years, the slope of the curves has changed. There will be kinks in the curves; in fact since the turning point in June there have been one or two, but the trend is definitely upward for the first time since 1930, the peak year for the electric utilities here on the Pacific Coast.

Nineteen thirty-three was not as bad as the signs and portents at its beginning would have led us to believe it would be. There was an actual gain in kilowatt-hour output, thanks to the increased demand that developed during the closing months of the year. Revenue dropped, but the loss was only half as great as in the preceding year. Customers began coming back, so that the net loss at the close of the year was only slight. Statistically the outlook for 1934 is bright; socially and psychologically—well, that's a different story.

Looking at the actual figures, kilowatt-hour output for 1933 gained 1.1 per cent to 13,016 million kw.-hr., not

Table II—Energy Generated in Public Utility Plants of 11 Western States, 1923-1933

State	ENERGY GENERATED (THOUSANDS OF KW.-HR.) 1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933*
California	5,069,314	5,566,440	6,215,813	6,898,620	7,355,548	7,979,837	8,849,622	8,948,326	8,796,177	7,948,505	7,963,539
Oregon	594,434	678,394	729,859	831,135	844,654	1,040,743	1,161,386	1,219,250	1,176,987	968,980	953,496
Washington	1,446,486	1,503,560	1,623,007	1,807,792	2,121,939	2,361,024	2,552,325	2,555,233	2,572,134	2,486,754	2,454,990
Nevada	47,048	41,623	39,703	36,840	51,236	54,935	43,840	42,895	19,006	32,749	21,963
Utah	272,577	266,946	339,967	349,604	338,067	282,791	402,005	292,550	276,483	275,476	236,215
Arizona	157,183	153,196	130,531	172,243	278,559	335,755	283,023	384,443	404,309	280,898	296,824
New Mexico	18,268	19,913	21,787	25,993	33,462	52,326	67,179	75,871	179,658	157,611	157,826
Colorado	461,570	490,030	522,892	561,962	551,173	541,150	563,813	573,341	528,817	478,263	460,885
Wyoming	48,853	53,556	55,544	59,381	66,493	83,931	98,665	98,215	94,539	84,633	82,243
Idaho	694,781	792,532	754,079	810,789	806,402	947,709	894,417	911,709	796,484	584,589	595,779
Montana	1,138,545	1,145,285	1,262,629	1,407,903	1,394,655	1,619,351	1,613,688	1,319,800	966,097	635,093	885,584

*12 months ending November 30.

Table III—Classification of Central Station Customer, 1932 and 1933

State	Total Electric Customers 1932	1933	Change	Domestic Customers 1932	1933	Change	Commercial Lighting and Small Power Customers 1932	1933	Change	Wholesale Power and Miscellaneous Customers 1932	1933	Change
California	1,865,531	1,854,808	—10,723	1,484,660	1,479,846	—4,814	261,631	256,628	—5,003	119,240	118,334	—906
Oregon	234,059	233,378	—681	180,778	180,342	—436	33,681	33,264	—417	19,600	19,772	+172
Washington	416,805	414,431	—2,374	320,405	319,919	—486	55,858	53,871	—1,987	40,542	40,641	+99
Nevada	17,367	18,115	+748	13,278	13,894	+616	3,097	3,205	+108	992	1,016	+24
Utah	107,721	107,625	—96	80,878	80,158	—720	11,315	11,491	+176	15,528	15,976	+448
Arizona	69,256	67,722	—1,534	52,694	51,006	—1,688	9,801	9,735	—66	6,761	6,981	+220
New Mexico	34,244	34,210	—34	25,946	25,952	+6	6,250	6,208	—42	2,048	2,050	+2
Colorado	204,828	204,661	—167	161,543	161,426	—117	28,942	28,695	—247	14,343	14,540	+197
Wyoming	32,717	32,423	+294	25,612	25,367	+245	5,863	5,810	—53	1,242	1,246	+2
Idaho	76,898	76,658	—240	52,131	51,982	—149	11,715	11,516	—199	13,052	13,160	+108
Montana	85,798	83,531	—2,267	66,952	65,611	—1,545	15,348	14,347	—1,001	3,498	3,573	+75
11 Western States	3,145,224	3,127,652	—17,162	2,464,877	2,455,493	—9,374	443,501	434,770	—8,731	236,846	237,199	+443
Total United States	24,149,300	24,126,926	—22,374	19,849,963	19,843,724	—6,239	3,687,636	3,689,204	+1,568	611,701	593,998	—17,703

Table IV—Generator Capacity in Utility Plants, November, 1933*

Division and State	Companies	Plants	Total Capacity, Kw.	Generator Capacity of Plants Operated By — One Type of Prime Mover — Water Power No.	Water Power Kw.	Steam Power No.	Steam Power Kw.	Internal Comb. Engines No.	Internal Comb. Engines Kw.	Combination of Two or More Types — Total No.	Total Kw.	Water Power Kw.	Steam Power Kw.	Int. Comb. Engines Kw.
Montana	8	30	310,599	17	299,610	7	7,863	3	1,448	3	1,678	268	445	965
Idaho	18	45	226,605	38	220,315	3	1,100	0	0	4	5,190	4,180	0	1,010
Wyoming	20	35	43,527	8	15,580	17	24,307	9	2,940	1	700	400	300	0
Colorado	26	67	236,025	21	53,942	33	174,641	8	4,998	5	2,444	1,469	100	875
New Mexico	15	27	85,503	1	200	13	77,011	9	3,841	4	4,451	808	1,617	2,026
Arizona	16	41	142,606	11	87,050	9	30,790	15	4,573	6	20,193	0	2,489	17,704
Utah	19	57	141,562	52	96,142	1	41,000	1	465	3	3,955	1,740	0	2,215
Nevada	4	10	10,427	7	8,895	0	0	2	1,000	1	532	96	0	436
Washington	30	80	918,811	50	722,029	20	192,352	2	173	8	4,257	2,299	880	1,078
Oregon	21	66	336,119	41	174,704	16	154,990	5	1,675	4	4,750	2,030	500	2,220
California	28	150	2,899,632	117	1,731,143	28	1,162,275	5	6,214	0	0	0	0	0
11 Western States	203	608	5,351,416	363	3,409,600	147	1,866,329	59	37,327	39	48,150	13,270	6,331	25,529
United States	1,542	3,828	36,205,245	1,353	9,498,163	1,390	25,374,175	795	374,902	290	958,005	269,080	568,333	120,592

*Data from U. S. G. S. includes all public utility plants of 100 kw. or larger and is more inclusive than Table V since railway and other plants generating energy of public utility purposes are included. Only companies having generating plants are shown.

quite as great as the national gain, but it must be remembered that here in the West, the decline was later in starting and recuperation will also lag. As was the case in 1932, hydro plants supplied the major portion of the power requirements, 86.9 per cent of all energy being developed from water power.

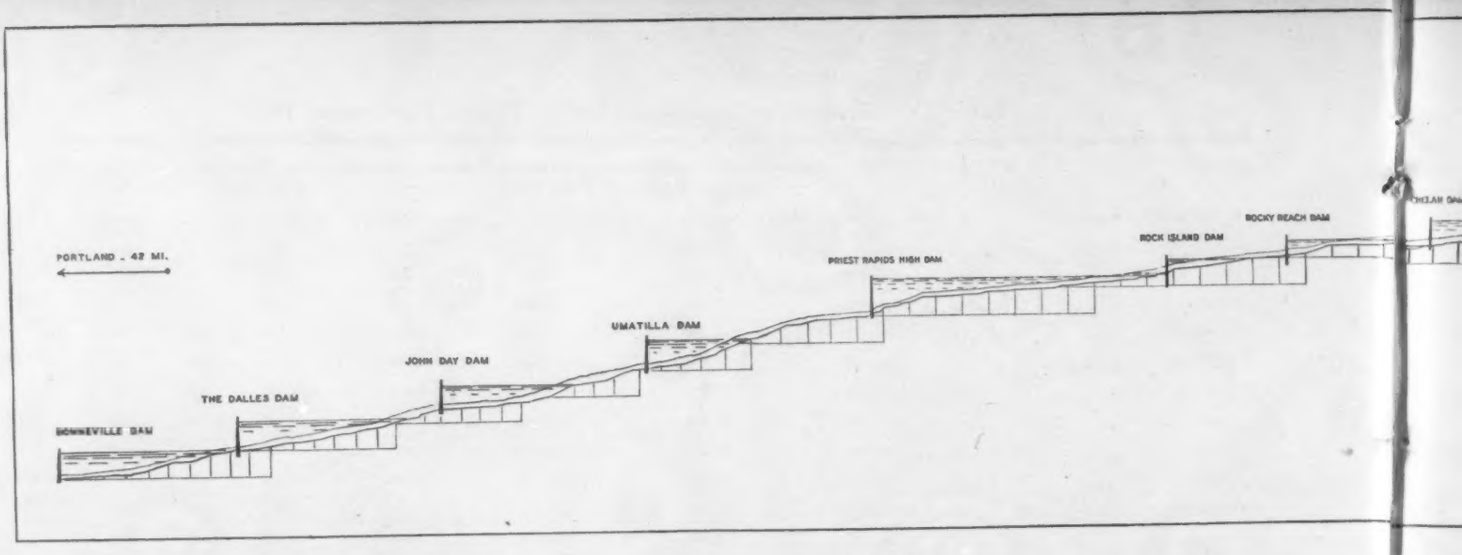
Gross revenue dropped $10 million to $235 million or 4.1 per cent. The national decline was 3.7 per cent. This drop in the face of an increase in output reflects rate reductions on the one hand, and the loss of domestic customers on the higher average cost blocks. The loss in revenue was partially offset by a decline in operating expenses from $89 million to $86.1 million. These figures do not include taxes or depreciation.

Data on installed capacity are available from two different sources.

Total customers served by the utilities in this region decreased 17,162 to 3,127,652. Of this number 2,455,493 fall in the domestic classification, 434,770 are commercial lighting and small power and 237,199 wholesale power and miscellaneous. Farm customers are not segregated due to differences in classification by various individual companies, but are included in both the domestic and wholesale power groups. Figures compiled by the E.E.I. showed that there were 188,808 electrified farms in the 11 Western states on January 1, 1934, out of a total of 710,299 for the country as a whole.

Table V—Prime Movers, Generators and Output—1932 U. S. Census

State		Establishments Reporting — Total No.	Commercial	Municipal	Generating Equipment	Distribution Only	Prime Movers — Total No.	Total Hp.	Steam Turbines No.	Steam Turbines Hp.	Steam Engines No.	Steam Engines Hp.	Internal Combustion Engines No.	Internal Combustion Engines Hp.	Hydro Turbines No.	Hydro Turbines Hp.	Generators No.	Generators Kw.	Output (Kw.-hr.) Thousands
Montana	1932	27	23	4	22	6	130	451,820	9	10,260	16	13,126	34	4,491	71	423,923	128	318,313	635,520
	1927	27	25	2	20	8	111	378,242	10	11,457	11	2,535	17	747	73	363,503	111	268,509	1,398,749
Idaho	1932	48	32	16	22	27	103	307,745	.....	.....	3	1,250	9	3,158	91	303,337	100	208,007	473,289
	1927	51	37	14	24	29	109	307,194	2	2,000	3	1,250	5	1,105	99	302,839	112	208,117	713,213
Wyoming	1932	44	32	12	30	15	97	50,354	24	37,124	18	4,637	41	5,650	14	2,935	97	36,272	74,596
	1927	42	28	14	28	15	87	48,156	24	34,334	24	5,340	28	4,769	11	3,723	91	34,748	67,070
Colorado	1932	61	33	28	43	18	226	310,645	53	194,094	39	12,457	65	13,584	69	90,510	219	221,246	437,229
	1927	72	36	36	55	18	197	268,404	48	173,579	38	11,836	48	4,050	63	78,939	196	198,919	499,565
New Mexico	1932	28	27	1	26	2	114	125,596	24	102,052	14	3,337	67	18,596	9	1,611	110	89,742	157,771
	1927	20	18	2	19	1	75	32,652	17	21,414	20	4,207	29	5,806	9	1,225	74	24,090	32,674
Arizona	1932	32	28	4	21	12	116	207,712	8	41,920	15	7,245	64	31,782	29	126,765	114	133,308	254,844
	1927	37	29	8	22	16	93	153,105	9	21,937	20	8,543	40	17,115	27	105,510	98	100,600	280,267
Utah	1932	45	13	32	26	19	107	201,115	3	54,666	.....	.....	14	6,261	90	140,188	109	137,199	275,845
	1927	46	17	29	23	23	92	198,846	3	48,240	1	50	4	1,950	84	148,606	90	132,755	340,873
Nevada	1932	18	14	4	8	10	29	19,691	2	3,000	.....	.....	15	3,076	12	13,615	29	13,078	37,635
	1927	18	14	4	9	9	34	18,976	1	201	4	415	12	2,395	17	15,965	32	13,090	57,137
Washington	1932	69	54	15	30	40	179	1,230,158	28	295,837	10	6,587	16	2,180	125	925,554	175	883,441	2,554,756
	1927	67	52	15	31	38	168	847,826	32	141,492	8	6,200	12	1,405	116	698,729	165	603,684	2,105,288
Oregon	1932	36	25	11	27	9	156	537,165	27	248,709	9	4,835	28	6,420	92	277,201	148	382,329	968,589
	1927	37	26	11	26	11	133	308,501	22	129,730	13	7,175	12	2,380	86	169,216	126	222,997	840,062
California	1932	63	42	21	30	33	293	3,897,516	56	1,507,919	8	22,330	31	9,273	198	2,357,994	377	2,864,359	7,901,339
	1927	75	52	23	36	42	357	2,780,746	65	894,273	16	35,540	25	6,010	251	1,844,925	360	1,964,990	7,060,972
11 West States	1932	471	323	148	285	190	1,550	7,339,527	234	2,495,581	132	75,804	384	104,471	800	4,663,671	1,606	5,287,294	13,761,527
	1927	492	334	158	293	210	1,459	5,342,648	233	1,478 657	158	83,091	232	47,732	836	3,733,178	1,455	3,772,499	13,395,874
Per Cent Increase		—4.3	—3.3	—7.0	—0.3	—9.5	6.2	37.4	0.4	68.9	—16.4	—8.8	65.5	120.2	—4.3	24.9	10.4	40.2	2.7
U. S.	1932	3,429	1,627	1,802	1,867	1,628	11,182	47,965,990	2,821	32,904,258	1,300	648,501	3,276	866,312	3,785	13,546,919	11,108	34,624,068	79,657,431
	1927	4,335	2,137	2,198	2,431	2,004	12,030	35,710,128	2,864	24,323,304	2,267	994,273	3,177	548,288	3,722	9,844,263	11,967	25,811,305	74,686,378
Per Cent Increase		—20.9	—23.9	—18.0	—23.2	—18.8	—7.0	34.3	—1.5	35.3	—42.7	—34.8	3.1	58.0	1.7	37.6	—7.2	34.1	6.7



8,000,000 Kw. Goal of Columbia River Development

Complete Utilization of Generating Facilities From Power, Navigation, Flood Control and Irrigation Projects Represent Additions Equal to Approximately 22 Per Cent of Existing Capacity in the United States. Projected Kilowatt-Hour Output of 41 Billion Equivalent to One-Half the Present Output in the Entire Country

CHARACTERIZED as the greatest power stream in America, the Columbia River is to be harnessed for the benefit of industry by a series of public works undertakings so stupendous in magnitude that adequate description of their physical size or the understanding of their social significance is difficult. When completed the estimated generating capacity of 8,000,000 kw. will more than quadruple the present installed capacity in Oregon, Washington and Idaho, the economic limits of the area of the potential power market. Grand Coulee and Bonneville, herinafter described, will more than double the existing available generating capacity in the area.

The Columbia has played an important part in the development of the Northwest since the early days. Its drainage shed of 259,000 sq. mi. includes the famed "Inland Empire" of the Pacific Northwest and, with its tributaries, the Columbia has been a natural highway from pioneer time until the present day. Commercial navigation is practical only for a distance of approximately 200 miles from its mouth but its value for irrigation and power supply along its entire course in the United States cannot be estimated. Flood control is a minor consideration on the development of the river. The economic use of the power and land to be brought into use is a far more important and perplexing problem than the engineering problems which will confront the engineers who are harnessing the river.

By no means the largest or longest river in the Americas, the Columbia is one of the greatest power streams in the world. Rising in British Columbia at an elevation of 2,650 ft., this river flows a distance of 1,210 miles to the Pacific Ocean. Of this distance approximately 750 miles is in the United States. Between the point where it crosses the Canadian border and its mouth the fall is 1,284 ft. From the accompanying profile chart of the river bed between Grand Coulee and Bonneville it will be seen that the fall is gradual which, together with the relatively regular flow of the stream and the characteristics of the river valley itself, makes the Columbia an ideal river for the development of large blocks of power.

Several elements contribute toward making the Columbia River a good power stream. At its source it is fed by snows, glaciers and mountain streams. Nature has provided a number of large lakes which act as natural reservoirs to feed out storage during the low water season. The annual run-off of the entire drainage basin including that of the Snake River is equivalent to a rainfall of 12¾ in. over the entire 259,000 sq. mi. of watershed or, in acre-feet, 146,000,000. **This run-off is about ten times that of the Colorado River at Hoover Dam.**

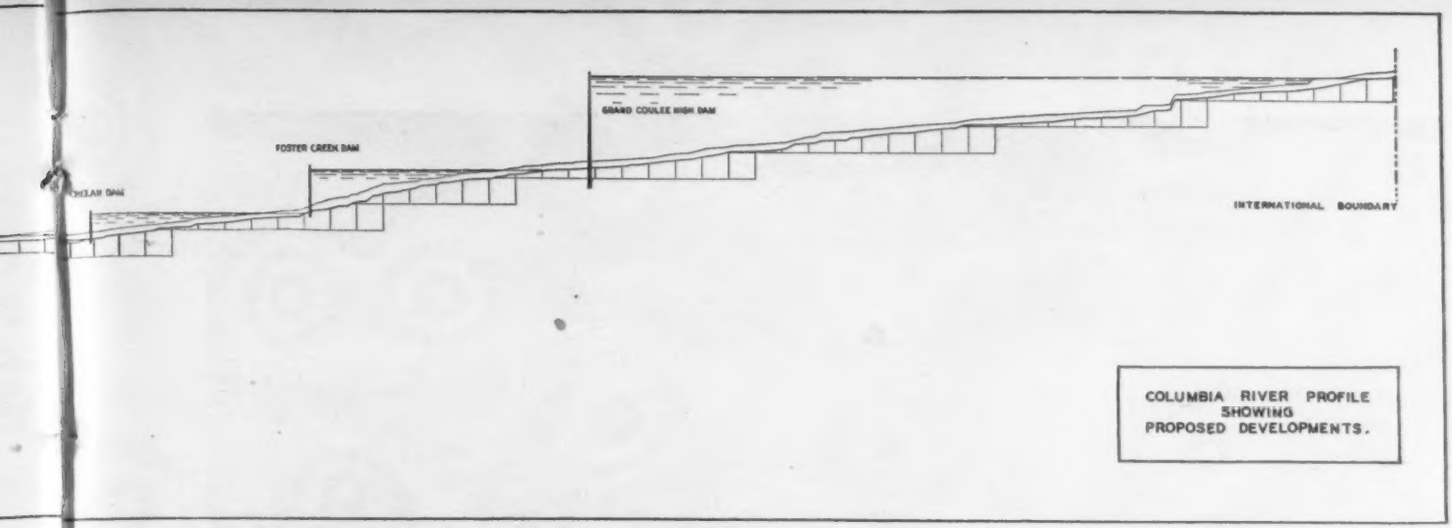
To utilize this tremendous runoff advantageously the report of the U. S. Army Engineers proposes a series of ten dams at the following localities:

- At Grand Coulee, a dam 430 ft. high
- At Foster Creek, a dam approximately 200 ft. high
- At Chelan, a dam approximately 120 ft. high.
- At Rocky Reach, a dam approximately 100 ft. high.
- At Rock Island, a dam 60 ft. high (completed)
- At Priest Rapids, a dam approximately 150 ft. high
- At Umatilla Rapids, Ore., a dam 330 ft. high
- At John Day Rapids, Ore., a dam 258 ft. high
- At The Dalles, Ore., a dam 150 ft. high
- At Bonneville, Ore., a dam 72 ft. high

Cost of these developments including interest at 4 per cent during construction are estimated to be as follows: Grand Coulee, $393,000,000; Foster Creek, $49,000,000; Chelan, $39,000,000; Rocky Reach, $38,000,000; Priest Rapids, $63,000,000; Umatilla Rapids, $60,000,000; John Day Rapids, $110,000,000; The Dalles, $89,000,000; Bonneville, $59,000,000. The foregoing total some $961,000,000 which will probably be increased to something over a billion dollars by the time all irrigation works have been completed. Such is the cost of the development.

Power Development

The estimated power which will be delivered from the foregoing projects will be approximately 41,064,000,000 kw.-hr. annually or approximately one-



COLUMBIA RIVER PROFILE SHOWING PROPOSED DEVELOPMENTS.

half the total annual power consumption in the United States. Naturally, the artificial storage created by the series of dams will materially change the present flow characteristics of the river itself. It is estimated that the dam at Grand Coulee will increase the natural storage in five large lakes in the upper river basin to 5,974,000 acre-ft. The high dam at Grand Coulee itself will create 5,028,000 acre-ft. of storage. This storage plus that which will be created by the nine other dams will total approximately 17,764,000 acre-ft.

At the present time the flow at Grand Coulee dam site there is from 17,000 sec.ft. minimum to approximately 500,000 sec.ft. during flood times. The regulation of Grand Coulee reservoir alone will increase the minimum flow at the site from 17,000 to 32,900 sec.ft. Naturally, this increase will have a definitely beneficial effect on the output of plants farther down the river, one of which, Rock Island is already installed. At the present time the minimum flow at Rock Island is approximately 21,000 sec.ft.

The Bonneville and Grand Coulee projects are already under construction. These two plants will have an ultimate installed capacity of 320,000 kw. and 1,500,000 kw. respectively. The total estimated annual output from these two plants is approximately 10,000,000,000 kw.-hr. The marketing of this power and its effect upon the Northwest will be discussed in a later article. (See p. 23)

Navigation

From the standpoint of navigation the Columbia River is important only for a relatively small proportion of its length. In the lower or tidal section extending from the mouth to a point approximately 140 miles east improvements in navigation cannot be combined with power development, irrigation or flood control. This section of the river is particularly important because of its ability to carry ocean-going vessels into Portland and Vancouver and the government has been working in conjunction with local port authorities for many years in the development and maintenance of suitable navigation facilities. In so far as the power development of the upper Columbia River is concerned, the navigation facilities of this portion of the river need not be considered.

The middle section of the river extends from the head of tide water to the mouth of the Snake River, a distance of some 180 miles. At the present time there is a series of rapids in the Cascade gorge, the first of which is located at the mouth of the gorge and around which the government built a canal in 1896 with a 40-ft. lift lock with a maximum depth of 8 ft. Approximately 60 miles farther up the river Celilo Falls presents the next obstacle to navigation. Navigation past these Falls is afforded by a lateral canal completed in 1919 with five locks, also affording a depth of 8 ft.

From this point to the month of the Snake River a safe navigation channel, exists but the controlling depth is approximately 4 ft. at low water. The navigable channels in this section of the river are approximately 100 ft. or more wide but because of swift currents it can be navigated only by high-powered boats of relatively small cargo capacity and is not suitable for modern barge navigation. The dam at Bonneville, The Dalles, John Day Rapids and Umatilla Rapids, while important from the power generation standpoint, will also improve the navigable facilities of this portion of the stream so that it will be suitable to modern barge traffic.

While, at the present time, the middle section is unimportant from the transportation standpoint, studies show that a substantial movement of goods via water can be anticipated with the establishment of efficient and economical barge navigation. Estimates show that a movement of 600,000 tons of freight could be expected with an estimated saving to the shippers of approximately $1,000,000 a year. The potential navigation in the middle section of the river is of such value as to warrant the requirement that power development be designed to provide suitable navigation facilities and the report of the U. S. Army Engineers states that the public benefits to accrue therefrom are sufficient to warrant the assumption by the federal government of the entire cost of the necessary locks and channel enlargement.

Irrigation

It is estimated that there are approximately 2,000,000 acres of land along the Columbia River which can be irrigated economically from that river. The irrigation of the bulk of this land in the most economical manner depends largely upon cheap power for pumping. Irrigation, therefore, to a large degree depends upon power installations. As the Columbia in eastern Washington flows through a relatively deep gorge, it is necessary to pump the water from the river up onto the surrounding territory. Fortunately, nature has provided a number of valleys suitable for conversion into reservoirs. Particularly is this true at Grand Coulee, the utilization of which will be described in a subsequent article. (See p. 18)

While the bringing of additional land under cultivation at this time does not appear feasible, surveys and studies made of the Columbia River area indicate that the crops which can be taken off irrigated land in that area will not compete with the alleged surplusses of our staple crops.

Flood control is a problem only in the lower Columbia and, while it will be aided by the installation of the foregoing projects due to the provisions for storage and regulated flow which will thereby be obtainable, it is not particularly an important item in the summation of the benefits which may be expected from the Columbia River development program. Bigger and better levees in the lower Columbia River Valley seem to be the only feasible solution to the flood control problem.

Cheap power is the government's primary consideration in this tremendous program and in conjunction with it are the developments of navigation and irrigation. The program as a whole and in several of its component parts is larger than anything previously undertaken by the federal government for social betterment. It appears to be a frank experiment designed to force economic growth as marketing analyses will show. (See p. 23). Whatever the results may be, no one can question that they will have far-reaching effects on the people of the Northwest and perhaps on our national social structure.

Aerial view of the Grand Coulee damsite on the Columbia River, 60 miles west of Spokane, Wash., showing the dam and power house and bridge spanning the river below. Ultimate capacity of the plant is fifteen 105,000-hp. units with an output of eight billion kilowatt-hours. Test borings are being made at the damsite and construction will start on the bridge and camps immediately. PWA has appropriated $63,000,000 for the project, which will cost ultimately $171,000,000

GRAND COULEE—
The Key to
Columbia River Power

Costing Some $375,000,000, This Project Will Produce Practically Double the Amount of Firm Power Available at Hoover Dam and Will Provide Facilities for Irrigating 1,200,000 Acres of Land

IN the complete development of the Columbia River, Grand Coulee is the key project, being both the largest of the ten dam sites proposed and the one farthest up the river. When completed the Grand Coulee Dam will form a lake 152 miles long backing the water up to the international boundary between Canada and the United States. The lake created by the dam itself plus the increase in the levels in the several large lakes tributary to the upper Columbia will produce storage of over 10,000,000 acre-ft., providing not only a vast reservoir of potential power but also a means of regulating the river flow below the dam so that power developments farther down the river can be made more productive during the low water season. It is estimated that Grand Coulee Dam will increase the minimum flow in the river immediately below the dam site from 17,000 sec.ft. to 40,000 or 50,000 sec.ft.

Briefly the Grand Coulee project provides for the construction of a dam and power house costing $171,000,000, the formation of a huge artificial lake by pumping water into Grand Coulee, the cost of pumping plants, etc. being $9,000,000, and a water distribution system of canals, pumping plants and laterals for irrigating 1,200,000 acres of land costing some $200,000,000, the entire project including the interest during construction to cost $394,000,000. This figure exceeds the expenditures made in the construction of the Panama Canal by approximately $20,000,000.

In comparing the power which will be made available at the completion of the Grand Coulee power plant it is interesting to note that the 8,000,000,000 kw.-hr. estimated to be the annual production from Grand Coulee is practically double the firm power output of Hoover Dam and almost three times the maximum output from Muscle Shoals. The ultimate installed capacity will be approximately equal to that of the Niagara Falls developments.

Grand Coulee Dam

The site of Grand Coulee Dam is at the point where the present course of the Columbia crosses the northern end of Grand Coulee, a tremendous natural depression in the plateau through which the Columbia has carved its channel. By installing earth dams at either end of Grand Coulee and pumping the water from the reservoir created by the dam across the Columbia, an artificial lake 23 miles long and from 6 to 10 miles wide will be created which will have a storage capacity of 329,000 acre-ft. and a maximum flow-line elevation of 1,570 ft., 310 ft. above the crest elevation of Grand Coulee Dam which is 1,260 ft.

Grand Coulee Dam site is approximatel 60 miles west of Spokane in a sparsely settled area. The site is 30 miles from the nearest railroad and almost as far from a first-class highway although it is accessible over fair county roads. Work will be carried on under the direction of the U. S. De-

partment of the Interior, Bureau of Reclamation, and with the appropriation of $63,000,000 for the project late in 1933, work is already under way clearing the site.

Because there has been some doubt as to whether the entire $171,000,000 necessary for the completion of the dam and power house would be available immediately there has been some discussion of the construction of a dam and power house approximately half the size of the ultimate structure which could be completed for $60,000,000. However, such a plan would involve the obsolescence of about $40,000,000 worth of power house equipment and hydraulic works when the main structure was carried to completion and is so obviously uneconomic that the description of this proposal will be eliminated and only the ultimate development will be described in this article.

Grand Coulee Dam will be 450 ft. high above the foundations which go down 62 ft. to bedrock. It will be a straight concrete dam of gravity section having a length along the crest of 4,100 ft. The dam will contain approximately 11,000,000 cu.yd. of concrete, approximately three times the amount of that of Hoover Dam. It will create a lake 120 sq.mi. in area which, with an 80-ft. draw-down, will provide a little over 5,000,000 acre-ft. of storage. The spillway section will be 1,900 ft. long and designed to pass 1,000,000 sec.ft. of water, more than twice the recorded flood at this point in the river. The average flow of the river at this point is 109,000 sec.ft. Utilizing the storage available behind the dam and deducting the amount of water used in irrigation, the potential firm power available at the dam site is approximately 800,000 kw. In addition, large amounts of secondary power are available for irrigation pumping.

Power House

The power house building, located on the downstream toe of the dam to the left of the spillway section, will be a steel and concrete structure, 1,028 ft. long and 78 ft. wide. The generator room has been placed at an elevation just above maximum recorded tail-water elevation but the entire building will be made watertight at an elevation several feet above the assumed maximum flood water condition.

Fifteen main generating units, each rated at 105,000-kw. capacity, and two smaller house generators are proposed for the ultimate installation. Each main unit will be driven by a 147,000-hp. reaction turbine at 120 r.p.m. Each unit will have an individual governing system, its own direct connected exciter, and each will feed its own transformer bank at 22,000 volts which voltage will be stepped up to 220 kv. for transmission. Switching and protective equipment has been included for one outgoing transmission line per generating unit and in addition five generators will be equipped with switching and control equipment for supplying power to the twenty pumping units which comprise the ultimate installation in the pumping plant for irrigation purposes.

All low-voltage switching equipment, busses, etc. are to be located in the substructure of the main power house building. The 220-kv. transformer equipment will be located between the power house building and the dam itself. Penstocks supplying water to the turbines will have openings at 1,180-ft. elevation in the upstream face of the dam and will pass through the dam at that elevation and follow the downstream face to the turbine intakes.

The initial development proposes the installation of three of the main generating units. Additional units will be added as the load increases and the report of the U. S. Army Engineers made in 1932 indicates that the ultimate development would be needed by 1940 on the basis of previous load growth. Subsequent losses in demands for power probably will advance this date materially.

Its Proponents Claim Grand Coulee Will —

- Cost more than the Panama Canal
- Produce twice as much power as Hoover Dam
- Reclaim 1,200,000 acres of land
- Create a lake 150 miles long
- Store 10 million acre-ft. of water
- Generate power for 1.5 mills per kw.-hr.
- Contain three times the concrete of Hoover Dam
- Turn out 7 billion kw.-hr. annually
- Double the minimum flow below the dam
- Provide homes for 1,000,000 people

Irrigation

As previously stated, Grand Coulee will be converted into a huge artificial lake by the construction of earth dams at its north and south ends. The lake will be 23 miles long and its formation will eliminate the necessity for an expensive canal along the steep slopes of the Coulee itself. Water from the lake behind Grand Coulee Dam will be pumped into Grand Coulee by means of a pumping plant located on the shores of the reservoir upstream from the left abutment of the dam.

The pumping plant will be a steel and concrete structure 640 ft. long and 100 ft. wide with practically all of the building below the water when the reservoir is at maximum elevation. Twenty pumping units are proposed for the ultimate installation, each unit having a capacity of 800 sec. ft. when operating under a head of 370 ft. They will be direct connected to 22-kv., 33,000-hp., 200-r.p.m. synchronous motors. The pumping units are of such capacity that each main generating unit in the power house will operate four pumps with a full reservoir and three units with a minimum reservoir elevation. This coordination of generating and pumping capacity permits the maximum utilization of generating capacity and allows the speed of the pumping units to be varied so as to maintain the highest possible efficiency point throughout a large variation in pumping head.

Pumps will discharge into a concrete-lined canal of 16,000-sec.ft. capacity leading to the north dam of Grand Coulee reservoir. Canals from the lower end of Grand Coulee will be installed as fast as the reclamation of land warrants, the first area being in the vicinity of Quincy, Wash., where 150,000 acres will be brought under cultivation in blocks of 20,000 acres per year.

Cost of Power

The cost of the project, of which $204,000,000 is chargeable to the power plant and the remainder to irrigation and reclamation, is to be amortized from revenues from power sold to private and municipal power systems and from a charge of $2.50 per acre per year for irrigated land, the latter including $1.00 pumping charge. Generating units, starting with an initial development of three, will be added at the rate of one per year until the twelfth year when the output of the plant will be some 7,000,000,000 kw.-hr. At that time the investment in the dam and power house will be $209,080,000.

Interest on this investment, plus operating, maintenance, depreciation, and sinking fund charges will total $12,326,512 per annum which brings the cost per kw.-hr. to around 1.5 mills. The revenue will be obtained from the sale of this amount of power at 2.25 mills per kw.-hr., estimated to be a sufficiently low figure so as to attract purchasers and a figure well below that which power can be generated by fuel at the load centers on the Pacific Coast.

Further estimates indicate that government engineers believe that at the end of 50 years time the power revenues will provide a surplus of $4,000,000 annually to apply to repayment of irrigation charges and after the sinking fund repays the entire plant and dam investment the surplus will be $15,000,000 annually. The charges of $2.50 per year per acre for 40 years will repay the estimated cost of reclamation of $120 per acre and leave the farmer only $1.00 per year per acre to pay for pumping charges.

The above presupposes that the power generated at Grand Coulee will be used in some manner which at this time does not appear probable. The report on the Columbia River Basin project states that the area within a 300-mile radius of Grand Coulee, the economical limits of power transmission, will absorb power on an increasing basis from 4,000,000,000 kw.-hr. in 1930 to 41,000,000,000 kw.-hr. in 1960, an increase of 1,000 per cent with the final figure being more than half that of the total amount of power used in the United States in 1932.

Artist's conception of how an airplane view of the Bonneville project will look five years hence. Bradford Island splits the Columbia into two channels at Bonneville. The spillway and Ambursen structure may be seen across the upper end of the north channel on the right and the power house and locks across the south channel at the lower end of the island in the center of the picture

BONNEVILLE—
A Power and Navigation Project

Lower Columbia River Development Comprises Four Large Dams of Which Bonneville Is the First. Development Will Create a 30-Ft. Channel for Modern Barge Navigation to The Dalles and a 540,000-Kw. Power Plant Producing Energy for 1.5 Mills per Kw.-Hr.

OF the four major public works power projects on the Pacific Coast, Bonneville, on the lower Columbia 42 miles east of Portland, is the only one designed strictly as a river and harbor improvement development. The site of the project is at Bradford Island, a point on the river where the channel is relatively narrow in width and divided into two parts by the island itself.

Bradford Island will become an integral part of the 72-ft. dam which is to be constructed across the river at this point. Pondage created behind the dam will extend 50 miles upstream to the lower end of The Dalles-Celilo Canal, a short distance above The Dalles, Ore. The reservoir, of 60,000-acre-ft. effective storage, will inundate the Columbia River rapids just above the dam which are now girded by Cascade Locks, a government project constructed in the early 90's. The development will provide a power plant having an ultimate capacity of 540,000 kw. In addition locks will be provided around the dam sufficient for modern barge traffic.

At the dam site, the average river flow is 200,000 sec.ft., ranging from a minimum of 50,000 sec.ft. to a recorded maximum of 1,170,000 sec.ft. According to present plans, the main dam will consist of four separate structures designed to conform to the configuration of the river channel at this point. The main dam will extend from the Washington side of the river across the main channel to the upper end of Bradford Island. This section will carry a spillway having a discharge capacity of 1,400,000 sec.ft. The remaining portion of this section will be an Ambursen-type structure extending in a direction parallel to river channel to the high point on Bradford Island.

The continuation of the dam from this point to the southern end of the island will be an earthfill covered with a concrete slab for protection against erosion. This portion of the dam, actually a part of the island itself, runs in a westerly direction approximately 2,400 ft. to a point near its lower end. Here the power house structure itself will form the dam across the second half of the channel. At the extreme western end of the power house along the Oregon bank will be built tandem barge locks 56 ft. wide, 400 ft. long and 12 ft. deep, providing a maximum of 67-ft. lifts.

This hydraulic structure will create a dam having an elevation 72 ft. above water level and creating an over-all maximum head for a power plant of 62 ft. Power development plans provide for the initial installation of 90,000-kw. capacity in two units. The power house structure will provide foundations for a maximum installation of 10 or 12 units having a total generating capacity of 540,000 kw. and an output estimated to be approximately 1½ million kw.-hr.

Total cost of the development is estimated to be $31,000,000, of which $20,000,000 has already been appropriated. The work is to be carried on under the direction of the U.S. Army Engineers, contracts already being let for preliminary excavation and drilling on the site. Raising the water level behind the dam will involve the relocation of 7 or 8 miles of railroad on the north side of the Columbia River and approximately 5 miles of railroad on the south, or Oregon banks. Certain points on the Columbia River highway also will have to be relocated, these relocations involving estimated expenditures of approximately $6,000,000.

The cost of the project is expected to be liquidated exclusively from the power earnings. Because the improvement in navigation facilities are an important economic function, a large portion of the invesement, estimated to be

$15,000,000, is to be charged to river and harbor funds. The decreased fixed charges against the power plant itself as a result of this accounting, make it possible to produce power at the extremely low cost of 1.5 mills at the power house switchboard. This low cost power is expected to attract heavy industry to the Bonneville area and the present plans propose a generating voltage of 22-kv. so that nearby industrial sites can be supplied with power at generator voltage. The latter suggestion appears impractical due to the lack of adequate raw materials and the distance to major markets which, in a majority of cases, would outweigh the low cost of power when considering the location of a new plant.

Also problematical is the additional use of the upper Columbia for freight shipments. The present river traffic above Vancouver (Wash.) amounts to relatively little tonnage annually but the expected improvement in navigation up as far as The Dalles is anticipated to stimulate river-borne freight movements and increase the flow of commodities from the Inland Empire territory through the ports of Portland, Oregon, and Vancouver, Washington.

The fact that both Bonneville and Grand Coulee, each of which is far larger than any other power development in the Northwest, are both within economic transmission distances from the metropolitan areas along the Pacific seaboard, will complicate the utilization of the power which will be made available at their completion. Their combined output of some 10,000,000,000 kw.-hr. added to the existing surplus means a real problem for a territory whose 1930 demands were only 4,000,000,000 kw.-hr.

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Power From Kennett

The Central Valley Project, With Financing Yet To Be Approved by Federal Authorities, Will Add 350,000 Kw. to California Generating Facilities. Water Conservation, Flood Control, Irrigation and Power Are Involved.

RECENTLY approved by the California electorate, but as yet lacking definite assurance of federal financing the Central Valley water project completes the list of major developments involving additions to the generating capacity of the West. This project was inspired primarily as a flood control and irrigation development for the Sacramento and San Joaquin Valleys in central California. It is further designed to alleviate the danger of salt water penetration into the rich delta country adjacent to San Francisco Bay, which problem has been becoming more pronounced yearly as greater amounts of Sacramento River water are diverted to irrigation in the upper valley.

Briefly, the project consists of Kennett Dam in the Sacramento River valley above Redding. This dam will be 420 ft. high and impound a reservoir of 3,000,000-acre-ft. capacity. The installed capacity of the attendant power plant would be some 350,000 kw. but, as the project primarily is designed to raise existing low water levels in the lower Sacramento, the capacity factor at this plant is estimated to be not more than 15 or 20 per cent.

In the lower Sacramento River the Contra Costa conduit consisting of a canal and pumping plants will convey fresh water from Knightsen to the vicinity of Martinez. A second large pumping plant is designed to convey not less than 3,000 sec.ft. of delta water up the San Joaquin Valley to the mouth of Fresno Slough.

On the San Joaquin River Friant Dam, 252 ft. high will create a 400,000-acre-ft. reservoir in the foothills east of Fresno. Two canals, one leading northerly from Friant Dam into Madera County, and the other leading southerly from Friant Dam through Fresno, Tulare and Kern Counties to the vicinity of Bakersfield, will provide additional water for irrigation in the San Joaquin Valley.

The cost of the project is estimated to be $170,000,000 but its proponents claim that its economic value to California cannot be estimated in terms of dollars and cents. In the Sacramento

Map showing features of the Central Valley Water Project which embraces water conservation and power development in the Sacramento and San Joaquin valleys of California

Valley spring floods which now flow down the river and occasion constant expense in the maintenance of levees and dikes in the lower valley, instead of being wasted into the ocean, will be impounded behind Kennett Dam and released through the period of low water in the summer to maintain a constant stream of not less than 5,000 sec.ft. in the lower Sacramento. It is claimed that not only will this assure a channel 6 ft. deep to Chico Landing and a minimum depth of 4 ft. at Red Bluff but also the additional water released throughout the summer season will maintain higher river levels which will reduce pumping costs to the farmers and ranchers in the lower valley who pump from the river over the levees and into their irrigation canals and laterals. The saving in pumping cost alone is estimated to amount to thousands of dollars annually.

In the rich delta country adjacent to San Francisco Bay, present diversion of fresh water in the upper valley has created the menace of salt water penetration of these rich agricultural lands due to the backing up of salt water from San Francisco Bay into the river channel. The increased flow from the Sacramento would insure that the bays and sloughs of the delta country will again become fresh water and will permanently restore 400,000 acres of fertile land to a maximum productivity.

Another asserted major economic benefit is the assurance of an adequate fresh water supply in the industrial area on upper San Francisco Bay. This supply of fresh water would tend to reduce costs to present industries operating there and might attract additional industries depending upon an adequate fresh water supply for their processes.

Similar benefits are claimed for the San Joaquin Valley. In addition the two canals running north and south respectively from Friant reservoir will rescue 200,000 acres of the southern San Joaquin Valley from a return to the desert, a questionable benefit in these times of agricultural over-production. Navigability of the San Joaquin River would be made possible for a distance 86 miles upstream from Stockton.

The Central Valley project is to be financed by the sale of $170,000,000 worth of revenue bonds, which, the market for bonds being as it is at the present time, probably will have to be purchased by the federal government from public works funds. The foregoing figure does not include the cost of relocating the highway and Southern Pacific Railroad in the upper Sacramento River Valley. The relocation of the Southern Pacific grade for many miles in this mountainous territory will be tremendously expensive, the cost being estimated somewhere in the vicinity of $30,000,000. As the project is estimated to employ an average of 14,000 men for five years, its proponents consider it ideal for adaptation to the unemployment relief program of NRA under which the project would be eligible for a 30 per cent outright gift of federal money for financing.

The question as to whether or not the revenue derived from the sale of power and water will be sufficient to pay for the bonded indebtedness has been fiercely debated. Whatever may be the outcome, it is certain that the completion of the project will add 350,000 kw. of generating capacity to the present power surplus in California.

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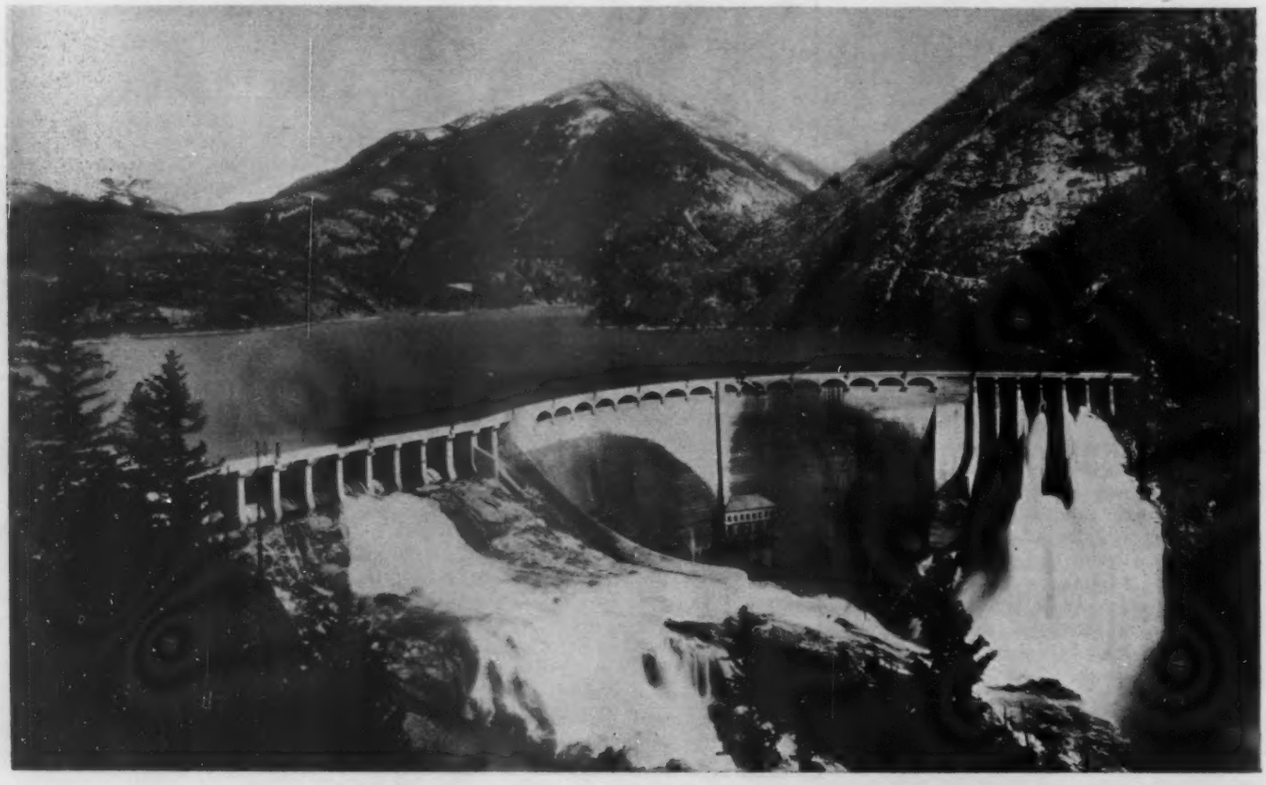
Diablo May Add 140,000 Kw. in 1934

Held up because of financing difficulties since the construction of dam, tunnel, penstocks and power-house foundations in 1930, Seattle Lighting Department's Diablo plant may be completed in 1934. According to J. D. Ross, Superintendent, negotiations are under way for the sale of bonds through private investment houses which will permit completion of this 140,000 kw. plant. Features of the installation are two 95,000-hp. hydro-turbines, the largest units yet built, and the dam pictured here. Construction of the Ruby dam and reservoir above Diablo depends upon favorable action by PWA from which a $12,000,000 loan is expected by the city



SURPLUS POWER

A Nightmare or a Sales Opportunity

WITH a Five Billion Kilowatt-Hour Surplus of Power Today the Electrical Industry of the West Faces the Problem of Marketing 21 Billion Kw.-Hr., Which Will Be the Ultimate Output of the Boulder Canyon, Bonneville, Grand Coulee and Kennett Federal Projects. This Analysis of the Power Requirements of This Territory Shows That Long-Range Sales Planning Will Convert the Surplus to Normal Uses Before 1955

WHAT is a surplus? Overproduction today may be shortage tomorrow. At the moment Pacific Coast power companies appear faced with a colossal surplus of kilowatt-hours, variously estimated at 33 per cent of present capacity. Topping this off is the specter of billions of kilowatt-hours to be produced by government-subsidized power plants. Taking a short-range view, the situation is worse than appalling; the disposal of the power to be produced appears impossible. However, the electrical industry, like the timber cruiser, is apparently too close to the forest to see the trees. Taking a long-range view which gives a true perspective, and giving weight to both the immediate and the more distant past, one may develop a picture that dispells pessimism and arouses enthusiasm for the opportunities and possibilities presented.

The Situation

Before projecting the accomplishment of the electrical industry 20 or 30 years into the future, an analysis of the present situation is necessary. In 1930 the light and power industry in the 11 Western states produced 16,500,000,000 kw.-hr. with an installed capacity of 4,781,190 kw. In 1933 the output was 14,000,000,000 kw.-hr. but the installed capacity had increased to 5,376,926, the potential production from which, at a 40 per cent capacity factor, would be 19,000,000,000 kw.-hr. leaving a surplus of some 5,000,000,000 over the present requirements.

To this existing surplus may be added the 7,000,000,000 kw.-hr. that will be produced at Grand Coulee, the 4,000,000,000-kw.-hr. output of Hoover Dam and the 4,000,000,000 kw.-hr. to be produced by Bonneville and Kennett and the result is a 21,000,000,000-kw.-hr. surplus over and above present requirements, truly a staggering figure. The present situation is exactly opposite to the customary procedure of estimating the probable future demands for energy and supplying sufficient generating capacity to fulfill the load requirements. It now is apparent that in 1950 the potential output from the generating capacity then in existence will be approximately 32,000,000,000 kw.-hr.

Building the market for this vast reservoir of power will be the problem of the next two decades and the job is not as impossible as it might at first appear. Consider first that power from these four big public works projects will have to be used in the states of Oregon, Washington, Idaho, Utah, California, Nevada and Arizona, that part of the West which contains almost 90 per cent of the total population of the entire eleven Western states and states which are most likely to attract new industries and new people. Second, with Hoover Dam at the southern end, Kennett in central California and Bonneville and Grand Coulee in the Northwest, the geographical and electrical location of these projects is such that there is a reasonable distribution of surplus as regards potential market.

There is no doubt that both Grand Coulee and Bonneville in the Northwest intensify the problem of utilization in that particular area where only 4,000,000,000 kw.-hr. were used in 1930. It will be difficult, but not impossible, to build a market fast enough to absorb the 10 or 12,000,000,000-kw.-hr. surplus that will be the annual production of those two projects. One observation does appear pertinent. These huge plants, located as they are, will tend to cause radical changes in the present direction of the flow of power. Hoover Dam power will tend to force Big Creek power into central and northern California instead of toward Los Angeles. Grand Coulee and Bonneville will probably divert some of the hydro power of existing plants away from the larger centers of population and industry and into the rural areas. A new and improved high-voltage transmission line network probably will be necessary to insure maximum economy in power utilization.

Briefly, then, the situation is this. It is possible to predict with unusual accuracy that the generating capacity of the eleven Western states will be capable of producing some 32,000,000,000 kw.-hr. by 1950. Most of this output will have to be absorbed in the Pacific Coast and neighboring states. The question is: Can this market for power which required 14,000,000,000 kw.-hr. in 1933 be expanded so it will absorb 32,000,000,000 kw.-hr. annually in the next two decades? The answer is, yes—and to substantiate this statement the following analysis of the surplus power problem is offered.

The Analysis

Perhaps the best way to gage the future is by the past, particularly if accurate data are available over a sufficiently long period to smooth out the effect of temporary disturbances, such as the great depression of 1930-1933. Beginning with 1920 Fig. 1 shows the relation between generating capacity and electrical output in the eleven Western states. The potential output as contrasted to the actual output was calculated by assuming a 40-45 per cent capacity factor for the installed kilowatts. These curves were carried through 1933.

From 1933 on to 1955 the generating capacity to be added can be calculated from a study of the plans of the four big public works projects. Hoover Dam comes on the line with its initial installation late in 1935, Bonneville and Grand Coulee are scheduled for 1939 and 1940 with additional units to be added to all three until they reach their ultimate capacities about 1951. Knowing the generating capacity, the potential output was calculated on a 40 per cent capacity factor and carried out as a continuation of the 1920-1933 curve. The actual output is known for the years 1920-1933. From past experience it is estimated that the demand for power will grow at a rate between 4 and 5 per cent compounded annually. This represents a yearly increase of 750,000,000 kw.-hr. Such a growth curve is plotted as a continuation of the actual 1920-1933 output and the area in between this curve and the potential capacity has been shaded to indicate the surplus kilowatt-hours.

At the end of 1933 the surplus is shown to be 5,500,000,000 kw.-hr., of which perhaps 750,000,000 kw.-hr. is a normal surplus. From Fig. 1 it can be seen that if a yearly increment of growth equivalent to 750,000,000 kw.-hr. can be maintained up to 1955 the energy demands will have caught up with the potential generating capacity in kilo-

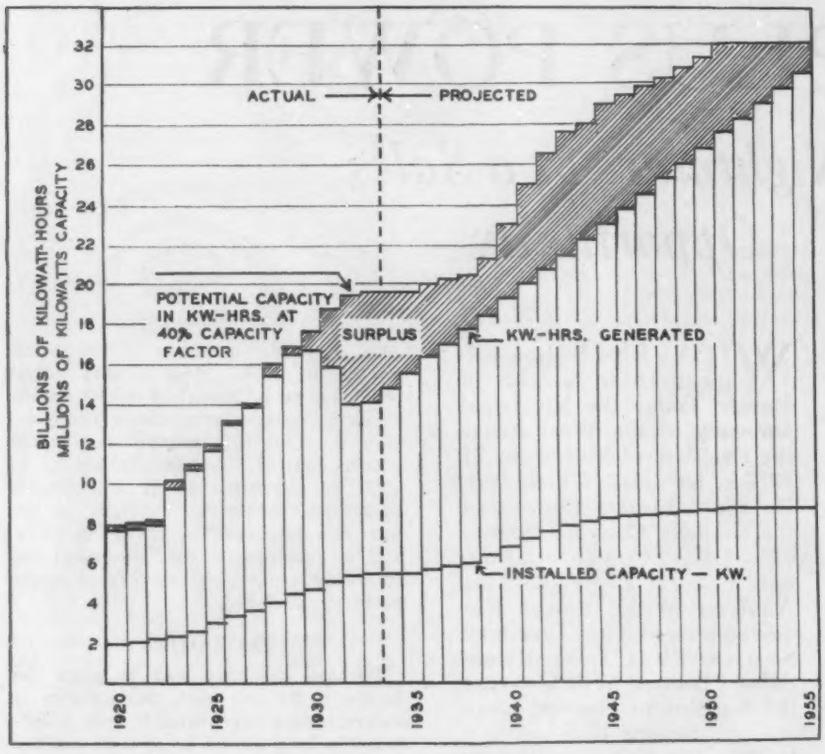


Chart showing the growth in installed capacity and kilowatt-hour consumption of the 11 Western States, with the additional capacity and production of Grand Coulee, Boulder Dam, Bonneville and Kennett as scheduled at present projected into the future. Normal growth also is plotted showing the surplus for each year

watt-hours. During most of the time between 1933 and 1955, the 5,000,000,000-kw.-hr. surplus will persist, gradually decreasing to a normal amount during the last few years of the period under consideration.

The foregoing assumes that the capacity factor of 40 per cent will not materially change during the period, a reasonable assumption considering that the new capacity is all hydro power and, as such, will have a relatively fixed amount of firm power annually. The secondary power is not considered in the question of markets because it will be used partly for pumping and other seasonal uses and because it will be sold at extremely low prices which may cause it to become economical to shut down certain of the older plants when the secondary power is available. Neither is the element of a fixed steam standby for these large amounts of hydro power considered. During the past few years steam plants have been idle, most of the power being generated from water. Much of the present existing surplus is in steam capacity which can be utilized for standby if large blocks of firm power from the public works projects are available.

Returning again to Fig. 1, it will be seen that the maximum surplus energy will be in the years 1940 to 1945 if present plans mature. During these years most of the public works plants will bloom forth into maturity with incremental increases in capacity from that time up to 1950 when most of the plants will have their ultimate capacity installed if plans under consideration now are fulfilled. Briefly, the curve gives a large-range view of what the growth has to be in order to use the 32,000,000,000 kw.-hr. which will be available annually by 1950. It shows that a market can be built up in the next 22 years to a point where it will absorb this power by selling new load which will increase the consumption 750,000,000 kw.-hr. annually. Converting this amount of energy into kilowatts at an average utilization factor of, say, 20 per cent, it means that it will be necessary to sell some 450,000 kw. of new current-consuming appliances and equipment every year.

It Can Be Done

In considering growth of any type, it is first necessary to gain some idea of the increase in population for the period under consideration. In 1920 the population of the eleven Western states was 8,962,972. In 1930 this figure had increased to 11,896,222, the population in this area being 9.7 per cent of the total U.S. By 1955 census experts expect that the population of the United States will be stationary at 160,000,000 people. The total population of the country in 1930 was 122,000,000 people which indicates in the next 30 years the growth of population would be some 38,000,000 people.

If this growth was uniform over the entire country, the eleven Western states would expect 9.7 per cent of 38,000,000, or roughly 3,700,000 additional people. However, if past records are any criteria, the West will grow at a slightly faster rate than the rest of the country and a conservative estimate for the West's share of the additional population on this basis would be about 5,000,000 people. This represents 13 per cent of the expected increase of the country as a whole and when it is considered that in the last decade the increase in population was 3,000,000 people for the eleven Western states, it would appear conservative to expect a 5,000,000 increase in three decades. Adding this expected increase to the present population gives us a figure of 16,900,000 people as the population of the eleven Western states in 1955. These are the potential consumers of the 32,000,000,000 kw.-hr. which will be available annually at that time.

If this population figure for 1955 is approximately correct, it should be possible to arrive at a close approximation of the number of electric consumers of the various classifications and, carrying the analysis one step further, determine what the proportion of the available energy each classification will have to consume in order to utilize the entire electrical output. This estimation is Tabulated in Table I, the explanation of its compilation being given below.

Domestic consumers: In 1932 the 11,892,222 people in the eleven Western states represented 2,447,198 domestic customers of electric service. This number of customers represents about an 85 per cent saturation, sufficiently high to limit the potential growth in number of new domestic consumers from this group to a very nominal figure. Most of the increase in the number of domestic consumers will have to come from population increases in the next 30 years. On the expected population in 1955 of 16,900,000 people, there should be an increase in domestic consumers to at least 3,600,000, a figure calculated from the ratio between consumers and population in 1932.

In 1932, the domestic consumers used over 1,600,000,000 kw.hr. or approximately 780 kw.-hr. per domestic consumer per year. Considering that the acceptance of all types of electrical appliances should be much greater 30 years hence, that the prices of competitive fuel probably will increase during that time, and that a customer who uses an electric refrigerator, an electric water heater, and an electric range, will use some 6,000 kw.-hr. a year, sales programs must be budgeted which will produce 1,800 kw.-hr. per year per domestic consumer by 1955. If this can be accomplished, the 3,600,000 domestic consumers 25 years hence would use 6½ billion kw.-hr. annually.

Commercial customers: In a similar manner to the above it was calculated that the 442,312 commercial customers in 1932 will have increased to 575,000 by 1955. The rate of increase of the commercial consumers is not as high as the domestic consumers largely because the trend is to bigger and more

efficient units and because the number of such establishments always approaches the least marginal unit and hence the number of stores, shops, etc. always approaches the maximum that the community can support. This in turn, means that there is always an excess beyond the number of maximum economy.

In 1932 the commercial customers used almost 3,000,000 kw.-hr., or an average of 6,700 kw.-hr. per year per commercial customer. Air conditioning, the growing appreciation for better lighting and the wider adoption of general electrification must produce the new load. The sale of 10,000 kw.-hr. per year per commercial customer by 1955 would produce a market for 5,750,000,000 kw.-hr.

Wholesale power: Wholesale power consumers of the large industrial classification probably will increase in number at a relatively low rate. It is difficult to forecast industrial growth with any degree of accuracy due to the large number of varying factors entering into such estimate. However, there should be a nominal growth in new industries as well as a growing trend from isolated plants to central station service as fuel prices increase and cheap hydro-electric power comes into the market. Hence, it is estimated that the 59,658 wholesale power customers of 1932 will increase to 70,000 by 1955. In 1932 this classification used 3,300,000,000 kw.-hr. As industrial electrification should become practically universal in the next 25 years and because there undoubtedly will be great advances made in the electrification of new processes and industrial machinery, it is possible to guess, and it is frankly a guess, that the wholesale customers should be able to absorb 6,000,000 kw.-hr., less than twice the present consumption of that classification.

Rural electrification: In 1932 the number of farm customers was 145,333. This represents an electrification in the Pacific Coast area of some 40 per cent. In the next 20 years there should be only a nominal increase in the number of new farms due to the increase in productivity and the more efficient use of the land already under cultivation. To be strictly conservative it is estimated that new farm customers will be obtained largely from the 60 per cent that are not now electrified and the probable number of electrified farms by 1955 has been set at 250,000. Farm customers utilized over 1,000,000,000 kw.-hr. in 1932, approximately 8,000 kw.-hr. per farm customer. In the next 25 years farm electrification should make tremendous progress and an average useage of 16,000 kw.-hr. per year per farm customer is considered feasible. If it is, the farm customers of 1955 will use 4,000,000,000 kw.-hr.

Street lighting: This classification of energy consumption utilized 303,000,000 kw.-hr. in 1932. By 1960 the need and demand for better street lighting should increase this classification to at least 1,000,000,000 kw.-hr. annually.

Railways: Electric transportation accounted for 1,156,000,000 kw.-hr. in 1932. With the increase in population by 1960 increased facilities will be necessary which should cause this classification to consume 2½ billion kw.-hr.

Company use, losses, etc: In this classification were placed the 3,392,000,000 kw.-hr. representing the difference between the kilowatt-hours generated and the kilowatt-hours sold in 1932. In 1955 this classification arbitrarily has been set at 5,000,000,000 kw.-hr., approximately half of which will be losses. The above figures appear conservative in the light of the progress made by the industry during the years 1920-1930. There is every reason to believe that such a budget can be obtained in the next 22 years. Yet adding up the consumption it is found that the total comes to 30,750,000,000 kw.-hr. in 1955 on this basis, leaving only a margin of 1,250,000,000-kw.-hr. surplus over the generating capacity of 31,000,000,000 kw.-hr. at that date.

Conditions contributing to the growth of the electrical industry in the next two decades would seem to be more favorable than ever before. The federal government has taken over the responsibility of supplying the generating capacity to meet the requirements of electrical growth. This will relieve the operating companies of financing, building and operating additional plants and allow them to devote all of their energy toward distribution and load building. The power obtained from these huge hydro-electric developments delivered to distribution systems, will be so low in price that the consumer who can get into the lower blocks of the rates should enjoy the use of power at a low overall cost which, in turn, will stimulate consumption.

The West is going to have the opportunity of becoming the most highly electrified area in the world. There is no doubt that the generating capacity for such an accomplishment will be available in the near future. The problem is one of load building and distribution.

Table I—Customers and Kilowatt-Hour Consumption, 11 Western States, 1932 and 1955

ITEM	1932 Number	1932 Kw.-hr.	1955 Number	1955 Kw.-hr.
Population 11 Western States	11,892,222	13,900,000,000*	16,900,000	30,750,000,000
Domestic Customers	2,447,198	1,634,111,541	3,600,000	6,500,000,000
Commercial Customers	442,312†	2,945,387,388	575,000†	5,750,000,000
Wholesale Power Customers	59,658**	3,331,929,892	70,000**	6,000,000,000
Farm Customers	145,333	1,136,044,000	250,000	4,000,000,000
Street Lighting Customers	.....	303,612,145	.....	1,000,000,000
Railway Customers	.....	1,156,138,000	.....	2,500,000,000
Company Use, Losses and Miscellaneous	.....	3,392,777,034	.....	5,000,000,000
Total Customers	3,194,501	13,900,000,000*	4,495,000	30,750,000,000
Output of Generating Capacity at 40% Utilization Factor	.....	19,000,000,000	.....	32,000,000,000
Surplus Power Available	.....	5,100,000,000	.....	1,250,000,000

*Kw.-hr. generated.
†Includes street lighting customers, consumption for which is shown below.
**Includes railway customers, consumption for which is shown below.

Rock Island was the first major plant on the Columbia River. Bonneville and Grand Coulee will add two toward the ultimate of ten. Power resources of this stream are set at 8,000,000 kw. with an output of 41,000,000,000 kw.-hr.

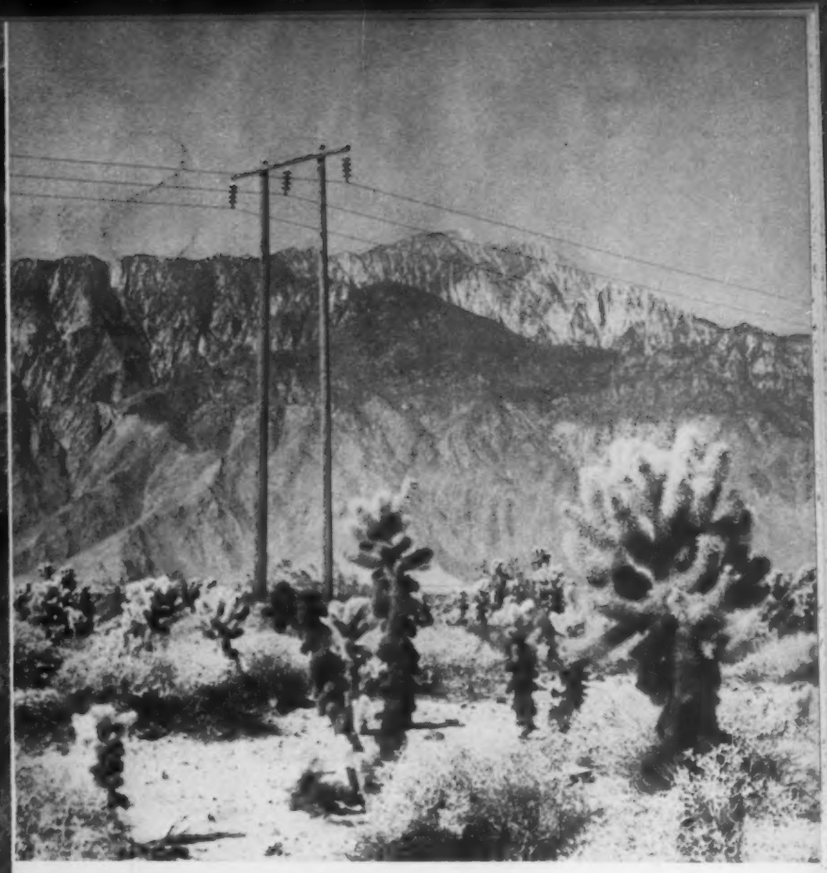
AERIAL VIEW BOULDER DAM, LOOKING UPSTREAM, TAKE 1,

BOULDER DAM—

as an Eagle Sees It

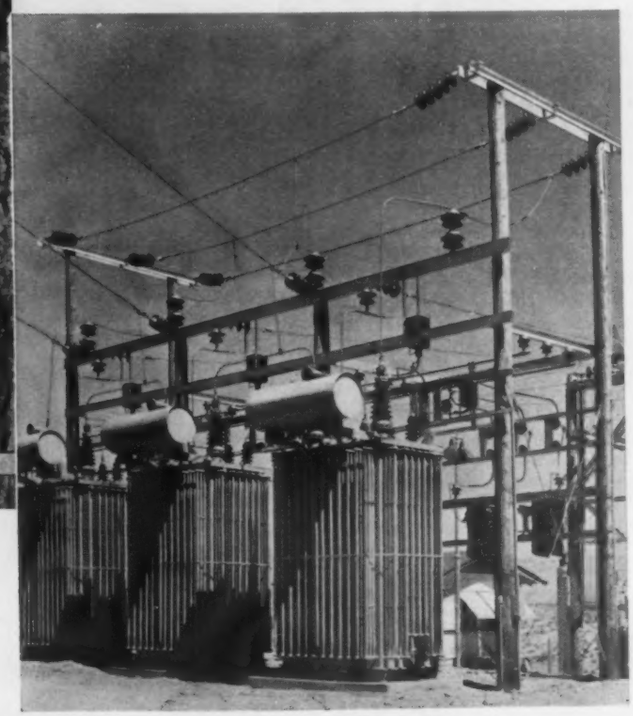
If the regular T.W.A. plane between Salt Lake and Los Angeles veered off its course near Las Vegas, Nev., and soared over Boulder Canyon, here is the picture that the air-minded passengers would get, except that for purposes of easy identification the outstanding features on this picture are labeled. Through the courtesy of the "Union Oil Bulletin" we reproduce this aerial view of the dam which gives some conception of the magnitude of this engineering under-

taking. Two of the four diversion tunnels carry the flow of the river around the central workings where the foundation of the dam shows as a series of boxes piled one upon the other. The two spillways (the one on the Arizona side is almost completed) would give some idea of the ultimate height of the dam without the line that shows the water level of the finished reservoir



Power for a Six-Year Construction Project

Electric power plays an important role in the construction of the Metropolitan Water District's Colorado River Aqueduct. Work under way and contracts let aggregate approximately $60,000,000. Construction of the transmission line to supply power to camps and works was a record undertaking. More than 448 miles of 66- and 33-kv. line were built in 300 days. Every conceivable type of country was traversed except swamps, including miles of ever-shifting sand. The upper picture shows a section of the line with San Jacinto Mountain in the background. Below is the Fan Hill substation, one of the typical stations for supplying power for construction. Parts of this transmission system will be included permanently in the district's system that will furnish power for operating the various pumping plants which will raise Colorado River water over the mountains into southern California



SPOTLIGHT the

Range

IN 1934 the spotlight will be turned on the domestic market. In terms of appliances and kilowatt-hours, residential customers today are using but a fraction of the services of the electrical industry that can be used profitably and conveniently. And an increase in appliance use will mean profit to the retailer, wholesaler and manufacturer, work for the contractor and load for the power companies. Development of the domestic market means more to the industry than just the sale of appliances; it means markets for wire and conduit, switches and fittings, meters and transformers. So, then, there is reason for detailed study of its possibilities.

For dollar volume, load increase and sales of supplementary apparatus and services, the "Big Three"—ranges, refrigerators and water heaters—offer the greatest possibilities. In this anaysis each will be treated separately.

A Big Range Year in 1934

There is every indication that 1934 will be a big range year. Peculiarly, the Pacific Coast region leads the nation in the development of the electric range market. Electric cookery was pioneered in this territory. The first carload of electric ranges ever shipped was placed at Billings, Mont., in 1911. In 1912 several carloads were ordered by power companies in Oregon, Washington and Idaho. By 1925 there were 66,130 ranges connected to the lines of Western power companies. Major growth in range load has taken place since 1925.

A conservative estimate of the number of ranges in service in the 11 Western states today is 346,000. With a total of 2,455,503 wired homes in this territory, this gives a present saturation of 14.1 per cent against the national figure of 5.8 per cent. Records

Refrigerator

for some of the individual states are given in the accompanying table.

Range Saturation—Pacific Coast States

State	Wired Homes	Ranges in Service	Per cent Saturation
California	1,479,846	108,579	7.3
Oregon	180,342	59,357	32.8
Washington	319,919	101,893	31.9
Idaho	51,982	18,605	35.8
Utah	80,158	23,532	29.3

As for the potential market, it is only necessary to cite the records of two power companies which have done outstanding jobs on the development of range load. These follow:

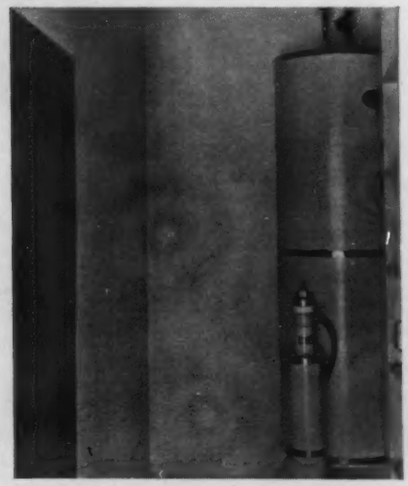
	Power Company A	Power Company B
Domestic Customers	136,060	93,914
Electric Ranges	42,111	16,479
Electric Water Heaters	20,241	4,412
Per Cent Range Saturation	31.0	17.6
Per Cent Water Heater Saturation	14.9	4.7
Average Annual Kw.-hr. Consumption	1,095	1,045

Were it possible to achieve the overall saturation of either of these companies, neither of which represents the maximum accomplishment, for the Western territory as a whole, there would be a tremendous market. In the peak year, which was 1929, there were sold in this territory a total of 51,312 ranges. Since that time sales have slipped downward. In 1932 the total was only 17,900, last year even less. Quotas thus far announced indicate a marked increase over the two preceding years, with the possibility of sales exceeding 25,000 units.

To make 1934 a banner range year, certain steps must be taken by the industry as a whole and by the utilities themselves. These involve cooperative activities, wiring, terms, and self-education. Briefly these steps include:

1. The clearing up of obsolete stocks of retailers, utilities and distributors which have accumulated during the last two years should be accomplished by renting or selling these models to employees.

2. There is still a selling job to be done within the industry. Rental or



Water Heater

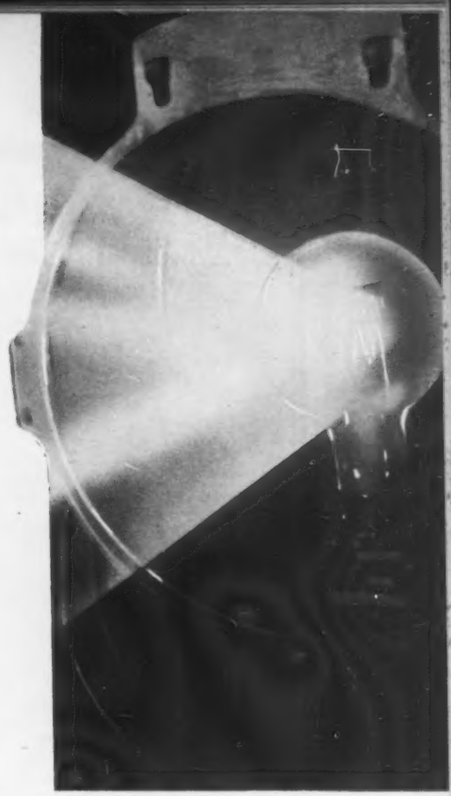
sales plans should be worked so that the maximum number of employees will know and can sell electric cookery. Greater acceptance must be developed within the industry itself.

3. Every range more than five years old should be modernized by the installation of the newer and faster heating elements. Complete campaigns for doing this job are available from the manufacturers. There is opportunity here for cooperative activity involving the power companies, dealers and contractors.

4. Wiring—one of the major sales resistances—can be overcome by the working out of a plan to absorb all or

Domestic Market

Its potentialities have scarcely been touched—



a portion of the wiring cost. One utility now accepts an old piece of cooking equipment as a trade-in for a $35 wiring allowance. Another is offering a certificate good for a $25 allowance on wiring.

5. In many sections of this territory the cream has been skimmed from the range market. In order to reach down into the lower bracket income classes, it is desirable that more satisfactory and longer terms be offered. The T.V.A. through the Electric Home and Farm Authority is offering four-year terms. Some utility commercial men believe that three-year terms will greatly stimulate purchases.

6. Cooperative sales activities should not be allowed to lag. Where Electric Cookery Councils have been organized, they should be revived. In communities where no such organizations exist, steps should be taken to form them. The success of local Refrigeration Bureaus has proved that such cooperative undertakings can be productive.

Bearing these facts in mind, it is possible for the industry to put range sales back on the plane of 1926-29 when normal sales averaged 42,500 units for this territory.

Another Million Refrigerators

National sales of household electric refrigerators exceeded the fondest expectations during 1933. Actual sales for the first 11 months were 1,029,271 and the estimate for December brings the total to 1,050,000. Every western state showed an increase over 1932. The following table compares 1932 sales with figures for the first 11 months of 1933:

State	1932	1933 (11 months)
California	37,403	59,847
Arizona	1,490	2,342
Nevada	864	1,001
Idaho	1,517	2,266
Utah	2,941	4,362
Montana	1,613	3,374
Oregon	4,903	7,071
Washington	5,313	11,692
Colorado	5,319	8,302
New Mexico	858	1,662
Wyoming	677	1,354
Total	65,839	107,635

Refrigerators went into 5.3 per cent of the wired homes in this territory in 1933. Expressed in another way, 6.5 per cent of the homes not having refrigerators purchased them during the year. If this rate of sales growth is only equaled in 1934, the domestic market in the 11 Western states will absorb 98,000 refrigerators this year.

Unquestionably the stimulus put behind sales by the National Electrical Refrigeration Bureau and the various local bureaus throughout the territory accounted in no small measure for the fine showing in 1933. This cooperative activity stimulated local sales activity, coordinated local action, provided a universal theme song for all sales organizations, unified both national and local sales activities and minimized destructive competitive sales and advertising tactics.

Success in 1934 will depend in no small measure upon the continuation and expansion of this cooperative activity. There is no doubt about the public acceptance of electric refrigeration, but the day has not yet arrived when either individual or cooperative sales effort can be discarded.

Water Heating to the Fore

Faced with the necessity of building consumption quickly, practically every Western utility is looking to electric water heating as a major load-building possibility in the domestic field in 1934. After many years of experimentation and confusion it seems that two distinct types of water heating service have been developed that meet the peculiar conditions and requirements of the utilities in this territory. In the Pacific Northwest the trend is definitely toward two unit installations of the time-controlled type on a rate of approximately 8 mills. In California and the Pacific Southwest the trend is toward higher wattage, small tank installations on unlimited service at a rate which will approximate one cent for the water heating kilowatt-hours.

—and Complete Kitchen

THE APPLIANCE MARKET

*Estimated Number of Appliances in Use and the Number of Wired Homes Yet Unsold in the 11 Western States, January 1934**

APPLIANCE	PERCENTAGE OF SATURATION	NO. OF HOMES USING	NO. OF HOMES WITHOUT
Cleaners	48.5	1,180,500	1,275,000
Clocks	37.9	932,000	1,525,500
Heaters	18.0	442,000	2,013,500
Hotplates	12.9	316,900	2,138,600
Irons	97.0	2,379,000	76,500
Ironing Machines	4.0	97,100	1,258,400
Percolators	31.8	778,500	1,677,000
Ranges	14.1	346,000	2,109,500
Refrigerators	22.7	557,000	1,868,500
Toasters	46.0	1,128,000	1,327,500
Waffle Irons	17.4	427,000	2,028,500
Washers	43.9	1,078,000	1,377,500
Water Heaters	6.2	151,000	2,304,500

* Based upon national saturation figures as developed by "Electrical Merchandising" except for ranges, refrigerators and water heaters.

While no rates of this character have been announced as yet, we are reliably informed that several of the power companies have new rates under consideration to induce wider use of electric water heating.

There are approximately 151,000 water heaters in service in this territory at the present time. Sales since 1926 have averaged about 15,000 new or replacement installations per year. The immediate market includes approximately 200,000 electric range customers who are using some other type of water heating service. Many companies will direct their major sales efforts at this group in 1934. As is the case with electric ranges, there is need for an industry educational job and some companies have already started educational campaigns with employees.

Development of water heating load is of direct interest to all branches of the industry. There is a wiring job for the contractor as is the case with ranges. Time-controlled installations include both a time switch and a separate meter, which mean additional business for manufacturers and wholesalers.

Electric Kitchen Ultimate Goal

Ultimate goal of industry domestic sales efforts should be the electric kitchen. National publicity, the various display homes at the Century of Progress Exposition and local displays have created attention and stimulated desire. No housewife who sees one of these kitchens will be satisfied until she has one for her own. The sale of a range, refrigerator or water heater should only be the initial step toward fulfillment of this desire.

Power companies, retailers, distributors and wholesalers should utilize electric kitchen displays to the fullest extent in creating public interest and attention in all electrical appliances.

the "Better Light" Market

"EVERY customer is a prospect." This, in a word, describes the lighting market. Its unlimited possibilities offer opportunities for load and business that have never been capitalized. And 1933 saw the development of a scientific approach to this field that promises well for 1934.

Sales activities of the entire industry this year will be based upon the new conception of the "Science of Seeing." Two 1933 developments, the "New Approach to Commercial Lighting" and the "New Approach to Home Lighting," are being carried over this year as a means of developing lighting load for the utilities, wiring for the contractors, and lamp, glassware and fixture sales for the manufacturers and wholesalers.

Recent developments in the selling of illumination have shown the industry just what can be accomplished by scientifically demonstrating to customers the value of proper and adequate lighting. They have opened up market possibilities for demonstrating and selling proper illumination for comfort in the home, for increasing the sales of all mercantile establishments and for better and more efficient factory production.

Real selling tools are now available which permit actual demonstrations on the ground. Portable equipment, consisting of a reflector and 250- or 300-watt lamp for home lighting, and an adjustable standard to which glassware may be attached for commercial lighting demonstrations make it possible to take advantage of the old adage that "seeing is believing." This equipment plus a "sight meter" has opened sales avenues hitherto closed.

Ample evidence of the effectiveness of these new sales tactics was obtained in the Better Light—Better Sight campaign in 1933. This organized industry sales drive resulted not only in the addition of load to the lines of the power companies, but also in the sale of millions of Mazda lamps and thousands of new and modern fixtures and glassware.

The cash register value of this new approach to lighting sales is proved by the experience of one Western utility company that made approximately 700 demonstrations to commercial lighting customers during the fall and winter. Actual check of the kilowatt-hour consumption of commercial customers in one district showed an overall gain of 12.7 per cent for those customers who received demonstrations against a total drop of 6 per cent for all commercial lighting consumers.

In the home lighting field, a trained domestic service girl, armed with "sight meter" and lighting kit, made 442 calls in 32 working days. In seven out of every 12 calls she was granted interviews and made surveys. For every 12 interviews she made five recommendations. Checkback on 43 of the homes where recommendations had been made showed that the 32 days of work had produced in excess of $1,000 per year of additional annual revenue. It is conservatively estimated that a home service worker trained in these newer phases of lighting work can account for a minimum of 200 watts of new domestic lighting load daily.

This new lighting sales technique gives a new conception of the lighting market. No longer is it a question of lamps, lighting units or glassware. It is measured in terms of intensities to be achieved. Thus if there are 400 grocery stores in a given area, which by actual survey, are shown to have an average lighting intensity of only 5 foot-candles and the recommended intensity for an adequately lighted grocery store is 20 foot-candles, there is a potential market for 6,000 foot-candles of additional lighting in this one field.

Studies of this character are going to develop new and specific approaches for developing this business. The generalized approach now in vogue in commercial lighting sales is to be discarded for specialized approaches that will fit one specific field and make selling just that much easier.

Armed with all of the new lighting sales tools and arguments, the industry will make great strides forward in 1934 in developing new profits from illumination. The electrical industry was born to fulfill public demand for light. The progress it has made to date in this direction is small when compared to the possibilities of the future.

"Damn the Torpedoes—Go Ahead!"

The Industry Decides to Advance Despite the Hammering of Hard Times; Dealers Everywhere Find a New Importance in Appliance Distribution

Company Name	Kw.-Hr. Per Residential Customer 1933	1932	1931	1930	1929
British Columbia Electric Railway Co., Ltd., Vancouver	.....	.....	.....	940	870
British Columbia Electric Railway Co., Ltd., Victoria	772	740	740	710	700
California Oregon Power Co.	.....	1,875	1,884	1,879	.....
Central Arizona Light & Power Co.	.....	745	727	665	592
Coast Counties Gas & Electric Co.	405	425	728	695	614
Idaho Power Co.	.....	.....	.....	1,447	1,252
Los Angeles Bureau of Power & Light	580	595	550	521	475
Montana Power Co.	.....	739	729	695	627
Northwestern Electric Co.	1,210	1,294	1,259	1,195	1,058
Pacific Gas and Electric Co.	733	7,563	7,586	723	653
Pacific Power & Light Co.	1,231	1,341	1,310	1,184	901
Portland General Electric Co.	1,014	1,053	1,028	1,004	945
Public Service Company of Colorado	.....	.....	450	424	383
Puget Sound Power & Light Co.	1,021	1,095	1,115	1,107	954
Salt River Valley Water Users' Assn.	.....	.....	1,569	1,509	1,241
San Diego Cons. Gas & Electric Co.	622	636	597	551	500
San Joaquin Light & Power Corp.	.....	947	942	916	836
Seattle Lighting Dept.	.....	1,014	1,102	1,084	1,033
Sierra Pacific Power Co.	893	930	885	781	716
Southern California Edison Co. Ltd.	681	728	720	691	637
Southern Sierras Power Co.	930	940	910	807	694
Southern Colorado Power Co.	.....	.....	595	561	495
Tacoma Dept. of Public Utilities	1,650	1,551	1,551	1,494	1,337
Utah Power & Light Co.	705	.....	772	725	566
Vallejo Electric Light & Power Co.	.....	.....	747	609	.....
Washington Water Power Co.	1,763	1,806	1,804	1,710	.....
Western Colorado Power Co.	485	.....	.....	.....	.....

WHOEVER the naval hero was that immortalized this expression, commercial and sales executives of western utilities are apt to regard him as brother, after the past year and a half. The torpedoes aimed at their sales programs may have been less lethal, less instantaneously explosive, but they were none the less deadly in their effect. Budgets, legal and legislative restrictions, the now well known depression, and a score of attendant afflictions have been hurled upon them like so many of General Hugh Johnson's "dead cats."

Backs against the wall, and staring a mounting surplus of power in the face, the sales forces at last "have their mad up" and are fighting back in something of the old form.

In the succeeding pages will be found the plans and the performances of each company individually. The tables on this page reflect the mass effect of the western utilities' sales work of last year and of quotas for 1934.

Kilowatt-hour average consumption in the domestic field, suffered a decline in practically every case. Yet the encouraging fact remains that many companies still average higher than 1,000 kw.-hr. per domestic consumer despite hard times and the economies practiced by consumers. These show the ruggedness of the demand for these electrical services.

Quotas for the three major appliance load builders are conservative, but firm. Dealer sales show a strong upward trend. Cooperative activity is being carried on everywhere on a scale and with a thoroughness and sincerity never before experienced in the industry. The mutual dependence of dealers and utility seems to be well recognized.

Even the advertising, illustrated in the following pages along with the individual company reports, seems to be better keyed to public needs. It is selling more truly the qualities, the unique virtues of electrical service and doing so in the customer's own language. The newness has worn off of electrical gadgets—now it remains for the industry to have them accepted by the public as superior means of doing the work they have always done otherwise.

The challenge has been accepted. Let the torpedoes come. Electrification is going ahead anyway!

Ranges—Water Heaters—Refrigerators

Company Name	Ranges Sales 1933	Ranges Quota 1934	Water Heaters Sales 1933	Water Heaters Quota 1934	Refrigerators Sales 1933	Refrigerators Quota 1934
British Columbia Electric Railway Co., Ltd., Vancouver	110	.....	65	.....	60	.....
California Oregon Power Co.	136*	.....	81*	.....	290*	.....
Idaho Power Co.	659	715	187	227	1,245	1,346
Los Angeles Bureau of Power and Light	725†	600†	45†	.....	7,500†	.....
Mountain States Power Co.	310*	.....	.....	.....	600*	.....
Northwestern Electric Co.	280	400	87	100	1,211	1,400
Pacific Gas and Electric Co.	2,871	4,600	1,457	3,000	19,380†	25,000†
Pacific Power & Light Co.	258	320*	215	250*	1,032	220*
Portland General Electric Co.	969	1,500	250*	500	2,500	2,500
Puget Sound Power & Light Co.	1,477	2,000	625	2,100	2,928	3,500
San Diego Cons. Gas & Electric Co.	200	.....	80	.....	3,400	.....
San Joaquin Light & Power Co.	1,004	1,050	447	500	4,175	4,350
Seattle Lighting Dept.	1,000	1,200	225	350	125*	175
Sierra Pacific Power Co.	390	500	70	100	291	400
Southern California Edison Co. Ltd.	1,250	3,200	125	2,000	8,100	16,000
Southern Sierras Power Co.	220*	210*	45*	120*	380*	300*
Tacoma Dept. of Public Utilities	444	700	407	600	1,200	1,500
Utah Power & Light Co.	746	1,025	15*	100	2,552	2,300
Washington Water Power Co.	376	750	217	750	1,935	2,000
Western Colorado Power Co.	15	30*	.....	2*	140	83

* All figures in this table are combined dealer and utility sales unless marked by an asterisk, which indicates company sales only. Where sales are dealer only, the figure is marked thus †. See individual reports for details.

Northwest . . . .

Pacific Power and Light Co.

By Guy E. Davis,
Merchandise Manager

WE were very much disappointed in the number of range and water heater sales made during the year 1933 and are planning to concentrate a major portion of our sales efforts on these two items during the coming season. In checking with our salesmen and district managers we found two major obstacles were in the way of closing range sales, namely, first cost of equipment, and installation costs.

In order to meet the first objection we have succeeded in securing a standard model electric range that we will be able to offer at a very attractive retail price.

As a means of removing the second objection, we are making a special offer of a maximum credit of $25.00 on range wiring costs. This plan is an experiment and will apply to a limited number of installations during January and February. Dealer sales will be included in the plan.

A special Range Installation Credit Certificate has been perpared and distributed to our thirteen branch offices on a quota basis. Each individual transaction must be approved by the district manager.

No newspaper publicity will be given the plan by either company or dealers. All sales efforts will be the personal contacts by the salesmen. If the plan is successful we hope to be able to continue throughout the spring and summer months and in such event would of course give the plan as much publicity as possible.

Sales of major appliances by the company for 1933 were as follows: Ranges, 144; water heaters, 144;; refrigerators, 285; washers, 619; and ironers, 70. The total dollar volume for the year was $187,183.18. Dealer sales for 1933 were: ranges, 114; water heaters, 71; refrigerators, 747.

Major appliance quotas for 1934 are: ranges, 320; water heaters, 250; refrigerators, 220; washers, 350; and ironers, 160.

We are feeling quite optimistic at the present time and looking forward to a good year's business in 1934 .

▼

Idaho Power Co.

By L. W. Brainard
Sales Manager

LOAD building effort during 1933, while largely absorbed in maintaining load and load levels, resulted in an increase of 202 residence customers. In major load building devices the sales figures reflect the accomplishments of both the company and dealers in the territory. The company net sales in ranges were 385, dealers' sales were 274, a total of 659. In refrigerators the company sales were 351, dealers 894, a total of 1,245. In sales of water heating installations the figures show progress, despite customer decrease, which no doubt would have been greater had it not been for the sales effort put forth. Net sales were 187, against a decrease in water heating customers of 258.

Quotas for 1934 have been set up as follows: ranges 715, refrigerators 1,346, water heaters 227. These quotas, it will be noted, have been estimated on the total accomplishment to be secured by the company and dealers. This is in line with our dealer cooperative plan which has been in effect the past several years. Quotas are given a territory, set on estimated total sales to be accomplished by the Idaho Power Co. and dealers, dealer sales being credited to quotas the same as the company's. Our dealer cooperative policy will remain in effect, with every assistance and encouragement given to dealers.

Our 1934 sales plans do not contemplate range rentals, trial plans or free wiring. It is the writer's opinion that there is no substitute for salesmanship and that load secured as a result of such methods will prove to be unstable and during times of economic stress losses of load will be correspondingly heavy.

During the coming year additional effort will be put in the commercial and industrial fields in connection with heating and power service, including air conditioning. Special effort will be devoted to all phases of lighting, both commercial and residential for I feel that the lighting field holds the best possibility for development and new load to be secured at the least expense.

Activity will be continued in connection with Refrigeration Bureaus and Cookery Councils, it being felt that such activities are the best sales and load builders and that money so spent will equal or better the return from any other method of advertising.

▼

Mountain States Power Co.

By C. M. Brewer*
President

BUSINESS trends, in the several states served by the Mountain States Power Co. appear to be slowly but surely pointed upward. Unemployment was materially reduced as the C.C.C. and various other relief projects were placed in operation. The lumber industry faces the future with optimism. Considerable highway work is being carried on. Under the PWA., construction of the Bonneville Dam on the Columbia River, and the Casper-Alcova irrigation and power project in Wyoming are expected to release money in the company's territory for labor and materials and should prove a material relief to unemployment. The agricultural situation is definitely improving with advancing prices and a better market. New street lighting contracts have just been secured with the cities of Kalispel and Whitefish, covering a 3-year period.

The sales department made a very good showing in 1933 as compared with the previous year. Over 600 refrigerators, more than double the number sold in 1932; 310 electric ranges, and numerous other major appliances were connected to the lines during the past year. The sale of agricultural equipment also has been stressed through radio and newspaper publicity in the Oregon and Montana divisions, many poultry houses and dairy barns now being electrically equipped.

*From a report in Byllesby Management, Jan. 1934.

▼

Puget Sound Power & Light Co.

By Tom D. Fulford
General Sales Manager

DURING the year we discontinued stocking and selling all small appliances. We conducted no campaigns in the sense of short time intensified activities. We carried on a sustained program with the three major units; ranges, water heaters, and refrigerators, with the following results: Ranges sold by the company 881, by dealers 596, a total of 1457; water heaters sold by the company 280, by dealers 345, total 625; refrigerators by company 417, dealers 2,511, total 2,928; a total unit sale by the company of 1,558 units, by dealers of 3,452, or by both of 5,010.

As just stated, we turned over our small appliance business to the dealers voluntarily. The dollar-sales volume of the dealers as a whole, under most unfavorable conditions up to July, probably came within 20 per cent of the previous year; and a number of dealers came out ahead of the previous year. Our advertisements were framed to favor the dealers in every way possible, and our field men contacted dealers regularly with information and sales helps.

We also ran over-prints on our bill forms throughout the year suggesting purchasing from dealers. For the Christmas trade we made a special effort, including suggested window displays and sales programs. We furnished all dealers with window streamers and display cards, and ran two 50-in. advertisements in all daily papers in our territory, exclusively for the benefit of dealers. The manufacturers, jobbers, and distributors cooperated most effectively. Much interest was stimulated by our distribution of 500 copies of the October "Electrical West," special issue. This program was successful in that most of the dealers had a better holiday trade in electrical goods than in 1932.

We will conduct an intensive campaign this spring, and another next fall for the sale of ranges, water heat-

"Oh, Mom! this is great!"
HOT WATER WHEN YOU WANT IT ELECTRICALLY
Let Electricity step into your home with another economy. This time it offers a continuous supply of hot water the year round at trifling cost—and a sufficient supply, too. Imagine having from 90 gallons to 200 gallons of real hot water on wash-day—as hot the first thing in the morning as at noon—clean, baths, wash dishes, do all your household chores and never once think of hot water.
Our Master Electric Water Heating Service is a new convenience, entirely automatic, absolutely safe. It does away with the one problem that is still in many homes—plenty of hot water.
Our representatives, your plumber or electric dealer will be happy to explain this new service to you. Investigate it when you plan for water heating this spring and summer.
LOW DOWN PAYMENT Easy Terms!
PUGET SOUND POWER & LIGHT COMPANY

Human interest pictures dramatize hot water service in advertising, above. Below, the taste and flavor appeal of electric cookery is featured

Northwest Sales Ads That Got Results

Humor used to good effect to sell a service rather than a water heater; at the right

Below: the special wiring price sponsored by the range council but advertised by the power companies cooperating

Cauliflower's natural, sweet flavor retained by Electric Cookery
—and that isn't all! Electric cookery preserves cauliflower's healthful minerals and vitamins—so very important because cauliflower is extremely rich in calcium, the great bone-building mineral most necessary to growing children! Honor economists say that the American family diet is 50% deficient in calcium . . . so serve more cauliflower, prepared so that this healthful calcium is retained!
Here is how controlled, low-temperature, waterless electric cookery does double duty. It keeps those valuable minerals in cauliflower and at the same time makes this vegetable so tasty that it's welcomed on the table every time you serve it!
Your family needs the health protection that electric cookery affords, and now there is no reason why you should not have an electric range in your home . . . particularly when you consider that it is real economy to have it. The average monthly fuel cost for operating an electric range is only $2.70, and there is an average saving of 20% in food shrinkage on oven-cooked foods! Electric range prices are now lower than ever before and you can buy one on easy terms. Call at any Pepco Electric Store or range dealer for full details.
PEPCO Electric Stores
PORTLAND GENERAL ELECTRIC COMPANY • PEPCO ELECTRIC STORES AT ST. JOHNS • ST. HELENS • GRESHAM • HILLSBORO • SALEM PORTLAND • OREGON CITY • VANCOUVER • SILVERTON
AND OTHER ELECTRIC RANGE DEALERS
Hotpoint
ELECTRIC RANGES
Now at New Low Prices
SPECIAL HOTPOINT FEATURES
CALROD HEATING UNITS
ELECTRIC TIME CLOCK
TEMPERATURE CONTROL
THRIFT COOKER
ELECTRIC CLOCK
Hammond Electric Clock will be awarded to the winner of this week's electric cookery essay contest. For full contest information listen to the Pepco Chorale program, KGW, at 9 each morning, except Sunday; or ask any electric range dealer for rules and entry blank.

Range wiring credit certificate used in a special campaign but not otherwise advertised

$10 RATE on Electric Range Wiring
GOOD ONLY UNTIL DECEMBER 23
Have You Bought Your New Electric Range Yet?
Do It Now and Save on Your Electric Wiring!
NEVER before in Portland was such a liberal offer made to new electric range buyers. Wiring cost has always been a rather important item in a new installation of an electric range. You don't need to put off your purchase now, because never was there a more fortunate time to buy.
The Northwestern Electric is cooperating with a number of Portland jobbers and retailers in order to save you money on electric range wiring for a limited time. From $35 to $50 will be absorbed by the group, so that you may secure a first-class wiring installation for only $10. Please don't confuse this installation with that done for $15 to $20. This is the kind of wiring every home should have for present as well as future needs.
NORTHWESTERN ELECTRIC
"In the City of Electrical Homes"
Portland, Oregon

A large advertisement which launched a novel contest and brought very satisfactory results

ANNOUNCING
PORTLAND'S Electrical Home Contest
FREE PRIZES
An easy, fascinating contest... everyone has an equal chance to win!
LIST OF PRIZES AND DONORS
NORTHWESTERN ELECTRIC
In the City of Electrical Homes

$25.00
No.
PACIFIC POWER & LIGHT COMPANY
Range Installation Credit
TWENTY-FIVE DOLLARS
This Credit Certificate when duly signed by the purchaser and Pacific Power & Light Company's District Manager, will be honored by the Pacific Power & Light Company as payment on authorized installation of any new or reconditioned electric range, sold by the Company or any cooperating dealer, for use on premises served by the Company.
Credit will apply only against actual cost of wiring and in no case is this credit to exceed Twenty-Five Dollars ($25.00) towards such cost.
ACKNOWLEDGED
APPROVED
PACIFIC POWER & LIGHT COMPANY
Purchaser
District Manager
Merchandise Manager

ers and refrigerators, with decided emphasis on water heaters. Each of our seven districts has been provided with a Weston lighting kit, and our lighting specialists will carry out a lighting improvement program, contacting industrial and commercial customers throughout the year. Estimated sales for 1934, both company and dealers, should be 2,000 ranges, 2,100 water heaters, 3,500 refrigerators, a total of 7,600 units.

We will put on a program for modernizing obsolete and out-of-repair ranges where sales cannot be made. We will put on a "customer recovery" program, designed to induce disconnected customers to resume use of service. Supplementing our seasonal cooperative programs of exhibits, demonstrations, and cooking schools, we will repeat with some improvements and changes in our plans for stimulating holiday trade for the dealers.

No outstanding new loads were connected last year. Considerable power load temporarily lost was regained because of better market conditions, especially in the lumber industry. Steady progress was made in farm electrification, made up of a large number of small installations. Notable headway was made in the application of electric soil sterilization and electric hotbed equipment, a new forced draft electric brooder, water warmers for chicks, and all-night lighting of poultry laying sheds. Irrigation in western Washington, heretofore used mostly for truck gardens and some field crops, is being extended to pastures in the dairy regions.

▼

Northwestern Electric Co.

By J. C. Plankinton
Sales Manager

IN cooperation with manufacturers, jobbers, dealers and wiring contractors, a plan of a $10 wiring charge to customers for range wiring was developed last year. The campaign ran from Oct. 25 to Dec. 23. The following division of wiring cost was made: Customer, $10; dealer, $5; jobber or manufacturer, $2; utility $5 cash, and $8, represented by furnishing of a 100-amp. main entrance cabinet complete.

During the campaign there were 20 ranges sold on our lines where new wiring was required. It is felt that the activity developed a closer cooperation and a better understanding among the several groups involved. In addition to the participation of the utility a considerable amount was spent in advertising by the company.

A cooperative effort was also put on by the company under its Electrical Home contest, run between Oct 10 and Dec. 9, at which 30 prizes were donated. The first three major prizes were given by the company; the balance of 27 other prizes was donated by 27 individual dealers. Eight homes were selected, photographed by permission of the owners, and the pictures printed in an advertisement with a key to the address of the particular home run in some dealer's advertisement during the same time that the advertisement containing the home appeared. The rules of the contest required that eight addresses had to be given correctly and submitted along with an essay of not to exceed 100 words on the subject, "Why I Like to Live in Portland."

There were 584 entrants and after selection of the 30 prize winners, the remaining 554 contestants, not included among the prize winners, were given a small table lamp by the company as a token of our appreciation for their efforts.

Sales on our lines during 1933 were: ranges, company 55, dealers 225, total, 280; refrigerators, company, 11, dealers 1,200; total 1,211; water heaters, company 27, dealers 60, total 87. Quotas for 1934 are: ranges 400; refrigerators 1,400; water heaters 100.

The average domestic kilowatt-hour consumption in 1933 was 1,448 in Portland, and 1,210 for the whole system.

We will continue to carry on cooperative effort with the dealers but no definite program has been worked out as yet.

▼

Portland General Electric Co.

By A. C. McMicken
General Sales Manager

WE are considerably more optimistic over the prospects for 1934 than at the time of writing you in similar vein in Dec. 1932. While our merchandise sales volume for 1933 was less than for the year 1932, there was a marked improvement in sales volume the last few months of 1933; December sales being 33 per cent better than those of Dec. 1932. We also take some hope from the fact that while we showed a decrease in the number of domestic customers in 1932, at the end of 1933 we show an increase of 1.8 per cent, and, in spite of conditions, an increase of 5.4 per cent in the number of domestic customers using electric ranges.

The total number of electric ranges added to our lines during 1933 was approximately 969 as against approximately 1,025 electric ranges added to our lines during 1932. As near as we can arrive at the figures our sales and dealer sales of new ranges amounted to approximately 861 ranges, of which dealers sold a little better than half. This is a decrease as compared with 1932. On the other hand the sale of electric refrigerators by dealers particularly, was beyond our expectations. We know that not less than 2,500 electric refrigerators were sold by ourselves and dealers in our territory and we are pleased to note that approximatley 88 per cent of these sales were made by dealers and only about 12 per cent by us. We devoted very little effort to refrigerator sales, feeling that the dealers had this business well in hand, and placed most of our effort on ranges and water heaters.

Since July 1, 1933, when we began campaigning for water heater business under our new eight mill controlled water heating schedule, we sold approximately 250 water heater installations with no assistance whatever from dealers, who, as yet, apparently do not feel that sufficient demand for water heating has been created by the utilities to warrant their stocking and selling this equipment.

We have established a range quota for 1934 of 1,500 ranges by ourselves and dealers, 500 water heaters, and 2,500 refrigerators. All of our plans are not yet complete, but we believe it will be entirely possible to make these quotas this year.

The average kilowatt-hour consumption per domestic customer for 1933 fell a little below our average for 1932 in spite of a net increase of 969 range users and 780 domestic lighting customers not having ranges or water heaters, which indicates the economy trend very plainly. The average kilowatt-hour consumption per domestic customer for 1933 was 1,014. We are naturally hopeful that in 1934 we will more than regain the ground lost.

During the past year we made every effort to lend full cooperation to dealers in the sale of major appliances, particularly electric ranges. Seventeen advertisements, sixty inches each or larger, were run in all the principal papers in our territory to improve dealers' range sales. We took part in an electric range and refrigerator show, carrying a portion of the direct expense as well as the advertising. We carried out a $10 range wiring campaign in which all dealers participated. We used our regular morning radio broadcast in behalf of dealers' sales of ranges, refrigerators and other appliances, and directly expended in publicity and advertising in behalf of dealers in excess of $10,000 in local papers.

Our industrial load has shown some slight recovery, but the number of new industrial loads of any consequence has been comparatively small. Six new industrial users have been added during the year with loads totaling 1,200 kilowatts. Agricultural power loads, mostly small in size, have been added for summer irrigation of pasture, for brooding, and for soil heating.

▼

California Oregon Power Co.

By C. M. Brewer*
President

A GENERAL improvement in business conditions throughout the territory served by the company was evidenced in 1933. Industrial load showed a marked increase due to a decided revival of the lumber industry. Mining activity took on new life, too, several new mines adding new load to

*From a report in Byllesby Management, Jan. 1934.

company lines. The agricultural industry is showing slow but steady improvement along with increasing prices.

Sales promotion activities have been centered upon an effort to increase domestic load, particularly the lighting load. A "Better Light-Better Sight" campaign which was carried on during the Fall and Winter months featured the new type of indirect lighting fixtures and met with excellent success. Major appliances were campaigned vigorously during the entire year and it is interesting to note that 290 electric refrigerators were sold, a gain of more than 100 per cent over 1932. Totals of 136 electric ranges and 81 water heaters were installed during 1933.

A new contract for the sale of electric energy to the city of Ashland was consumated in 1933 under a rate mutually beneficial to the municipality and this company. The new $2,000,000 Soldiers' Home at Roseburg, Ore., which was occupied for the first time last Fall is an important load for the company.

An interesting check of the value of lighting demonstrations was made in the Siskiyou division of the California Oregon Power Co. Commercial customers who had received complete store demonstrations during the past year consumed 12.7 per cent more electricity in August, September and October, 1933, than they did during the same period in 1932; the total consumption of all commercial customers during this period, however, was 6.08 per cent less than in the same three months of 1932. This was taken to indicate that customers who had received demonstrations in their stores increased the size of lamps used, or used artificial lighting longer hours, even though they had not been able, under existing business conditions, to install more modern fixtures. Some 600 or 700 demonstrations were made in Oregon in 1933, with no great success in persuading customers to install new wiring and new fixtures.

Folders and newspaper advertising are being used in an endeavor to stimulate interest in radio entertainment. Decrease in domestic electric consumption is attributed in part to less use of radios in the territory served by the companies. One farm radio program a week is being broadcast by the company over stations at Klamath Falls, Medford, Marshfield and Kalispel. A monthly bulletin is also being sent to all farm accounts. C. J. Hurd, formerly agricultural engineer, Oregon State Agricultural College, gives the radio talks on farm electrical problems.

▼

Tacoma Dept. of Public Utilities

By Verne Kent
Superintendent, Light Division

RANGE sales in Tacoma, last year, including those sold by the city and dealers totaled 444. There were 407 water heaters added to our lines, and refrigerators numbered approximately 1,200.

For 1934, we expect to see 700 ranges added to the lines by dealers and ourselves, 600 water heaters, and 1500 refrigerators.

Our average kilowatt-hour consumption per domestic consumer was well maintained. It averaged from 1650 to 1800 kw.-hr. for the year. We have no data concerning load increases in other lines at the present time.

▼

Lighting Dept., City of Seattle

By J. D. Ross
Superintendent of Lighting

WE find that there are some adjustments to be made and the books will not be closed until some time next week; accordingly the 1933 figures in the table below, are correct to Nov. 30, with the amounts for December estimated and added. In the report of our accountant for November, operating and financial statistics of interest were gleaned as follows:

Revenues from commercial lighting were still 8.33 per cent below 1932; domestic lighting 7.72; power 3.04. Our billings on commercial power, however increased 1.23 per cent. Our commercial lighting accounts dropped 4.63 per cent; domestic only 1.88 per cent, while power accounts dropped 6.32 per cent. We had a total increase in number of meters in service from 94,315 to 94,490 or .19 per cent.

Merchandise sales by our department, with December 1933 estimated, expressed in dollar volume, are shown in the table above along with 1934 quotas.

	1932	1933	1934 quota
Ranges	$ 92,921.90	$ 90,500	$120,000
Water heaters	7,734.05	3,600	5,600
Washing machines	7,860.00	10,200	12,000
Refrigerators	16,948.95	22,000	30,000
Miscellaneous	30,413.90	25,500	30,000
Lamps	14,992.17	12,000	15,000
Total	$170,870.97	$165,800	$212,600

EDITOR'S NOTE: Mr. Ross sent also a resume of intended construction and power development activities of his department, which are made a separate story in another part of this issue.

▼

Washington Water Power Co.

By Lewis A. Lewis
Assistant General Manager

MUCH of our effort in 1933 was in reducing our stock of merchandise on hand and in working closely with dealers, encouraging their sales, with the result that because of conditions and to our methods of selling, the gross sale of merchandise, with the exception of refrigerators, was very much reduced from previous years.

Every dealer in our territory has been contacted time and again and advance information given as to our program. Our effort has encouraged the purchase of electrical merchandise through the dealer; advertising has been carried on through the newspapers, billboards and radio to that effect. The reduction in kilowatt-hour consumption, in my judgment, is an indication of what we can expect if an active merchandising program by the dealer and the power company is not maintained.

We plan a very active campaign on air conditioning during the year, working through the dealer on installations. Commercial cooking, baking and industrial loads have been an important part of our activity, 516 kw. being installed last year. Estimates for 1934 show a slight increase over 1933.

We will be very active in the sale of off-peak water heating, with an idea of reaching the non-electric range user with this service. Increased activity is planned for a better lighting.

There are 376 new range installations made by ourselves and dealers in 1933; 217 water heater installations; 1,935 refrigerators sold. In reporting on ranges and water heaters we do not count a range if it replaces another electric range, so that the report I have given you is a net increase in range installations. This year we hope to place 750 ranges, 750 water heaters, and 2,000 refrigerators between ourselves and dealers. The average kilowatt-hour consumption per residence last year was 1,763.

Never before has there been a better opportunity and a greater need for active sales effort than now confronts us. It is very evident in the West that the government will take over the large developments of generation, but this load must be sold and we must be prepared to take up this responsibility.

▼

B. C. Electric Railway Co. Ltd., Victoria

By S. J. Halls,
Manager, Light & Power Dept.

VICTORIA branch operations of the company on Vancouver Island have been fairly well maintained during the past year. We have added 509 new domestic consumers during the period, putting 1332 kw. of new load on the system.

Our efforts have been largely devoted to developments in the residential field, in which we have featured prominently electric ranges and water heaters. In conjunction with dealers, sales aggregated 110 electric ranges, 65 water heaters and 60 refrigerators in the period under review.

We are working on somewhat similar plans for 1934, these however are not yet complete and consequently quotas are not available. Average domestic consumption for the year 1933 was 772 kw.-hr. per account. In the in-

dustrial field no new loads of any consequence have been secured. However, during the past six months the trend of existing consumers' demand has been upward, particularly in the lumbering business, which has taken on its payroll large numbers of men, with consequent improvement generally in the areas in which we operate.

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. . . Mountain

Utah Power & Light Co.

By P. M. Parry,
Vice President

FOR several years we have more or less concentrated our outside sales effort on cooking, refrigeration and water heating. The justification for doing this—built around the all-electric kitchen idea—is that 80 per cent of our potential earnings in the home comes from the kitchen. It is hoped that there will be a sufficient improvement in business conditions to justify a sizeable amount of new building around which our program is so intimately involved.

Ranges, water heaters and refrigerators sold in our territory during 1933, including dealer sales (the latter being estimated), are as follows: Ranges—company 596, dealers 150, total 746; water heaters—company 15; refrigerators—company 1152, dealers 1400, total 2552. Quotas for 1934 are: Ranges—company 800, dealers 225, total 1025; water heaters—company 100; refrigerators—company 900, dealers 1400, total 2300. Our average domestic kilowatt-hour consumption for 1934 we hope will be 707; in 1933 it was 705.

Our dealer relations seem very satisfactory at the present time and it is possible that we will be able to encourage the dealers to greater effort during 1934, particularly in the interest of greater sale of small appliances. Just what form this cooperative activity will take has not been determined, but we are firmly of the opinion that the utility must remain active in the small appliance field and furnish leadership, which will result in general popularity of all things electric.

Our 1934 program also contemplates an effort to improve lighting standards in the home. No other outlet is as definitely interested in this program as the utility and we believe that our own effort, in cooperation with other outlets who are in a position to sell better lighting, will result in raising the standards materially. Department stores particularly will be encouraged to establish lighting departments, which will do more than sell various kinds of lamps. We believe that such departments can be made very profitable to such institutions.

Many problems presented themselves during 1933 which decidedly interfered with our sales program and while all of these problems are not yet settled, still we are looking forward to very much improved conditions during 1934. Our own sales activity will be keyed to take full advantage of such improvement.

Southern Colorado Power won first prize for utility windows of over 100 sq. ft. size in the National Electric Refrigeration Bureau Christmas contest with this attractive display

▼

Southern Colorado Power Co.

By W. N. Clark*
President

SOUTHERN Colorado fared much better in 1933 than in the drought year of 1932. Crops were good even if prices were unsatisfactory. While the local steel company was forced into receivership, the plant is running nevertheless at reduced capacity and orders are improving. In the Cripple Creek mining district, however, we are experiencing a steady revival of business. December power earnings were expected to improve 30 per cent over the same period of a year ago.

Sales of appliances were nearly 25 per cent over sales in November 1932. A total of 21,738 Mazda lamps, 125 per cent of quota were sold in the company's fall annual lamp campaign.

▼

Western Colorado Power Co.

By J. A. Clay,
Vice President and General Manager

ON the whole our merchandising business for the year was not bad, but our large power business has not increased. As of Jan. 1, 1933, we purchased the distribution systems in the towns of Hotchkiss and Crawford, and connected this territory on our 44 kv. transmission line between Paonia and Delta. This added about 150 domestic and 75 commercial customers to our lines.

Ranges sold by us in 1933 totaled 14, or 48 per cent of our quota. Dealers sold 1. The quota for 1934 is 30. Water heaters, we sold none, either dealers or ourselves, but hope to sell 2 or more next year. With refrigerators we topped our modest quota. We sold 78, or 108 per cent of quota; dealers sold 62. This year we hope to sell 83. The average domestic consumption was 485 kw.-hr. in 1933.

A cooking school was conducted at Montrose in January, last year, which was attended by 1,200 ladies during two days. A refrigerator campaign, conducted during May and June, was quite successful. An employee lamp selling campaign was carried on during September and resulted in the sale of 7,784 lamps, or 130 per cent of quota, and 1.34 lamps per meter. In connection with this we featured the "Pin-it-up" lamp and sales were satisfactory. Our advertising since September has tied in with the National "Better Light—Better Sight" activity.

Our Christmas merchandising activity was in cooperation with the Electrical League of Colorado's "Give Something Electrical for Christmas" program. Posters and other electrical sales folders were distributed to customers by us and to independent electrical dealers for distribution by them. Our own Christmas sales were small and we do not know how much electrical merchandise was sold by dealers, but our cooperation with dealers promoted much good will.

No new loads of importance were added during 1933, but recent gold strikes in our territory and new prices for gold and silver are expected to result in much mining activity by Spring.

*From Byllesby Management, Jan. 1934.

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. . . Central

Sierra Pacific Power Co.

B. H. A. Lemmon,
Commercial Manager

A CHANGE of plan, which we inaugurated early in the year and has now developed to the point that the company sells neither ranges nor refrigerators except through the dealers, accounts for the smaller percentage of sales by the company in 1933. We are still a little undecided regarding water heaters, and it may be that we will continue mildly to push company sales on this item. It will depend very largely upon the results of the rate hearings which have been held by the Public Service Commission during the year, and on which we are expecting a decision any time.

Our average domestic kilowatt-hour consumption for the past year was 893,

which figure indicates that we have been through a depression, as in 1932 it was 930. Our guess for 1934 on domestic consumption is, say, 940.

Of a total of 390 ranges sold in 1933, the company sold 50 and the dealers 340. The company sold 16 water heaters, dealers 54, or a total of 70. The company sold 22 refrigerators, the dealers 269, a total of 291. Quotas for 1934 are: ranges 500, water heaters 100, and refrigerators 400.

▼

Coast Counties Gas and Electric Company

By H. W. Edmund

Sales Manager

ALTHOUGH electrical merchandising conditions were improved during the past few months of 1933, our average sales for the year were considerably below what might reasonably be expected during normal times. This undoubtedly is due to the fact that a goodly portion of our territory lies in the agricultural districts. While conditions in these areas are improving, farm produce prices have not yet raised to the point where 1930 and 1931 conditions may be overcome.

Quotas on electrical merchandise sales for 1934 have been set on the kilowatt-hour basis, rather than number of appliances to be sold, as it is felt this is the most equitable basis. This quota for the territory served by Coast Counties Gas and Electric Co. is 275,000 kw.-hr. for domestic load, or approximately 20 kw.-hr. per domestic consumer more than at the end of Dec. 1933. The commercial quota is 100,000 kw.-hr., or approximately 40 kw.-hr. more per commercial consumer.

To assist in carrying out this program the regular salesmen in each district are being assisted by one man who spends his entire time developing electric load and is available for assistance on any prospective installations, either by the dealers or our own salesmen.

Average kilowatt-hour consumption per domestic consumer at the end of 1933 was 405, which is a reduction of 20 kw.-hr. over the same period for 1932. This, however, is due not so much to a reduced consumption among our regular consumers, as to the additional summer cottage territory which was added to our properties during the past year. The same condition is also partially responsible for the increase shown in the total number of electrical consumers for the year.

Effective January 1934 the electrical merchandising department of the Santa Cruz district of the company has been leased to Star Electric, Inc., one of the leading electrical firms in this territory. Under these arrangements the Star Electric is in charge of the display floor in our Santa Cruz office and no electrical appliances of any kind are being merchandised direct by our company. The regular salesmen are, however, being kept in the field by the Coast Counties Gas and Electric Company, and will complete their sales either through the Star Electric or one of the other electrical dealers in this territory.

We believe that this new setup will prove mutually satisfactory to both the dealers and our company, resulting in increased merchandise sales for them during 1934 and increased load for our company. Similar plans may be worked out from time to time in other districts.

At present a commercial lighting campaign is being conducted in cooperation with the dealers, and needless to say our entire plans for electrical merchandising during the coming year will necessarily be centered around dealer activities throughout our territory.

▼

Valley Electrical Supply Co.*

By H. H. Courtright

President and Manager

TIME does roll around rather fast. Another year, 1933, with the many obstacles which affected our sales and merchandising program, is behind us. In summing up the report for 1933 we find the following results: 1933 sales of ranges 1,004, water heaters 447. Our 1934 quota for ranges is 1,050; for water heaters 500.

These sales were all handled by dealers throughout the territory on our "Thru the Dealer Plan"; all sales made direct by our organization were passed through some dealer. We estimate that 4,175 refrigerators were added to the power company lines in 1933 and that 4,350 will be sold during 1934.

Throughout 1933 we carried on extensive dealer-cooperative activities. The advertising and window display service, started in 1932, was continued on an even larger scale. More than 250 contracts were made wherein a service in window display, show cards and advertising was rendered. In addition, cooperation was given the dealer in store arrangement and design and merchandising helps were suggested. This service was also offered to radio, refrigeration and electrical appliance shows and was effectively used at the Merced Radio Show and Fresno Refrigeration Exposition.

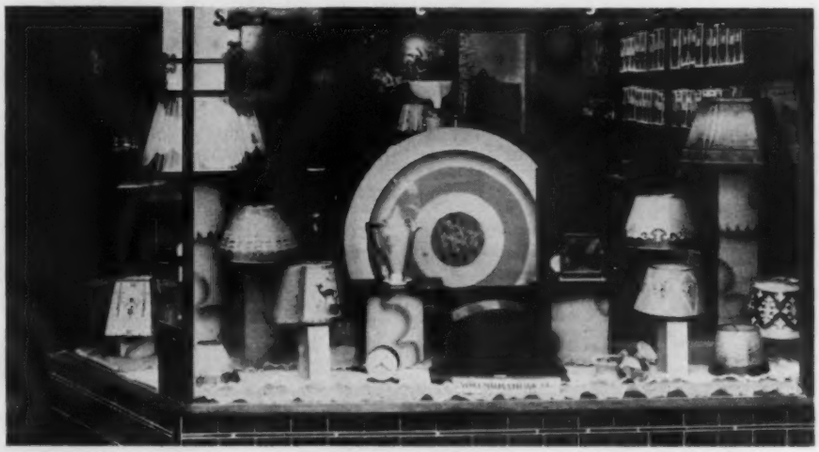
Closer contact was maintained with the dealer and his ideas and suggestions were solicited as to how we could improve our program so as to be of greater benefit to him. A complete program of the proposed monthly advertising, both by the power company and the Valley Electrical Supply Co. was assembled in calendar form. Each month was listed the billboard and newspaper advertising, also showing the smaller appliances to be featured each month in dealers' windows and District Office displays. From time to time cooperative ads were run in which we either listed the dealers' names or encouraged them to use tie-in ads.

During the period in which the codes were formulated, we attended many meetings, worked with the dealers in each community and assisted them in developing codes applicable to their local conditions.

Our 1934 program has been broadened and strengthened. Even greater cooperation will be given to the dealer. Occupying a most important spot in our 1934 activities will be the new all-electric kitchen appliance coach. The kitchen coach will be used to carry the story of the modern electric kitchen and other electrical home appliances direct to the consumer. It will be used to demonstrate and sell (for the dealer) all electrical time and labor saving appliances. As new or improved appliances are developed they will be featured in the kitchen coach.

This coach will be under the supervision of a trained home economist and a kitchen appliance salesman. It will be displayed throughout all parts of our territory, at county and district fairs, radio, refrigeration and electrical shows, cooking schools and elementary and high schools. It will prove invaluable in our dealer cooperative activities. In the city or town where the coach is being shown dealers who wish to avail themselves of the opportunity may have the coach driven up to their place of business for display purposes. The

*Merchandising division of San Joaquin Light & Power Corp., Fresno.



One of the dealer windows, Santa Maria Electric Co., which the Valley Electrical Supply Co. display department decorated—a regular service to electrical dealers

dealer will assume no part of the cost of this service.

The names of those registering, when going through the coach, will be turned over to the dealers as prospects for some electrical appliance. The kitchen coach will be in active use throughout the year and full advantage will be made of the opportunity it offers in sales promotion work and cooperative dealer relations.

In addition to our load building program a more intensive effort will be put forward in a load holding program. On the coast territory our present sales activities are little more than keeping pace with the number of consumers and kilowatts lost. Even so, the kilowatt hour consumption has decreased.

During the early part of 1934 and for a four months' period at least we will place an additional salesman on the coast. It will be his duty to contact all present domestic and commercial cooking and heating accounts as well as those consumers who have discontinued the use of this type of service during the past two years. With the former he will adjust all grievances, real or fancied, and will endeavor to keep them sold on the advantages of their heavy duty appliances; with the latter he will determine why they disconnected and resell them, if possible, on again using electricity for cooking and heating. While making these contacts, a complete and accurate load check will be made. Domestic consumers with large lighting bills will also be called on and encouraged to install heavy duty appliances that they may have advantage of the lower rate.

The salesman assigned to this work will concentrate on the sale of heavy duty equipment and a few small, but good load building appliances, such as reflector lamps. He will be fully qualified to demonstrate electric cookery.

There are many indications that 1934 will develop a greater and more intensive competitive effort in the domestic appliance field. The advent of a more efficient oil burner for cooking and heating and a decidedly more aggressive sales policy on the part of the oil companies in the promotion and sale of butane gas must be recognized as realities. These additional and more aggressive competitive efforts, coupled with an unrelieved economic emergency, present a problem that can be offset only by broader and greater sales activities. Our 1934 program is designed to meet this problem.

▼

Pacific Gas and Electric Co.

By R. E. Fisher
Vice President in charge of Public Relations and Sales

THANKS to mining, bridge building and wine, a year that touched new lows in annual sales of domestic electric appliances ended only .51 per cent below 1932 in kilowatt-hours sold in all classes of sales activity and our sales quota, expressed in estimated annual revenue 126.8 per cent of quota. Street lighting was our heaviest loser, registering a 10.67 per cent decrease, but I am happy to note already a tendency indicating a gradual restoration of this lost load, which is so important to the general safety of the community. Domestic heating and cooking by electricity also suffered a 9.11 per cent decrease in kw.-hr. while domestic lighting was held at 1.57 per cent and commercial lighting 2.57.

The increased price of gold and of silver, on the other hand, reopened mining activity which has long been dormant. Our mining load increased 12.45 per cent in kw.-hr. Agricultural power, with the return of wine making and of agriculture in general, brought a 2.53 per cent increase in agricultural kw.-hr. General power, thanks to beer and bridges, and resale power, increased .99 and 4.23 per cent respectively over 1932, largely made up in the last few months of the year.

That briefly is the story in cold statistics, but the truer picture of Pacific Gas and Electric Company's ceaseless fight to hold up the company's load and revenue despite conditions so adverse, cannot be told in figures. Our sales forces held the front line. Toughened by a year of as hard going as they will ever be expected to face, they are going to make progress this year. I am certain of it. Our men are all veterans. Our basic plan hasn't been changed in any essential particular. A few details have been strengthened, that is all. Our quotas are reasonable and our dealers throughout the system have never been with us so heartily as they are now. Elsewhere there is an account of how the Electric Appliance Society is functioning, so I will not repeat. But watch this organization in 1934. It is sound. It is growing. And it is going to make money for all branches of the industry.

Our own figures as to appliance sales are as follows: Ranges, company direct sales 1,273, dealers 1,598, a total of 2,871 ranges, or 68.4 per cent of our quota. Electric water heaters, company 791, dealers 666, total 1,475 or 72.8 per cent of quota. Major air heaters, 2 kw. and over, company sales 230, dealers 802, total 1,032, or 51.6 per cent of quota. Auxiliary air heaters, company sales 3,925, or 78.5 per cent of quota.

Quotas for 1934 call for combined sales by company and dealers on ranges, water heaters and major air heaters as follows: ranges 4,600, water heaters 3,000, major air heaters 2,000. On auxiliary air heaters we have set a quota only for company sales at 5,000.

Reluctance of dealers to promote the sale of better lighting in existing small commercial establishments and in homes caused us to continue the aggressive exploitation of this field. We employed an average of 70 men throughout the year on straight commission and bonus, and their efforts resulted in the sale of 21,167 units, of which there were 10,000 150-watt kitchen lighting units, 5,000 200- and 300-watt semi-indirect floor

A calendar of sales events for each month of the year has been distributed to all cooperating dealers and distributors of this company. Note too, the campaign emblem; the scheduled advertising to back up sales that month

lamps, 2400 commercial luminaries, 1,500 miscellaneous suspension units, 1,767 living, dining and bedroom fixtures of 200- to 500-watt size, and 500 indirect table lamps. In selling this equipment lighting salesmen contacted at least 300,000 domestic consumers, and 30,000 small commercial consumers. In addition to direct sales, a considerable amount of additional business was diverted to dealers, and contractors in every case made installations where wiring was involved. Besides, the educational influence of these calls in the interest of better lighting undoubtedly will have its effect on the usage of existing facilities.

In the sale of Mazda lamps, we inaugurated a new policy in September, predicated on two premises: First, to increase the sale of lamps in the higher wattages; second, to remove the conflict with dealers in the sale of lamps. Combinations of lamps were set up for sale so that efforts were concentrated on lamps of 60 watts and up. The result of this policy change was an increase in the average wattage of lamps sold during the last four months of 1933 of 4 watts over the average for those sold during the first 8 months of the year.

Refrigeration is not sold directly by this company, but through active co-operation and leadership in the Northern California Electric Refrigeration Bureau, this activity is carried on to exceptional success. There were 19,380 refrigerators sold by dealers in our territory in 1933, and we look to 25,000 as 1934's goal. The most effective feature of the Bureau's promotional program was its twice weekly radio broadcast, backed up by a weekly recipe booklet, "Kitchen Secrets," available only at dealer's stores. Month by month figures of sales clearly indicate the increase in sales attributable to this radio advertising program.

Although we had not planned directly to enter into the sale of air conditioning equipment, it was found that no company was in good position to make sales, and only Frigidaire was ready to make complete installations and service them afterwards. This year, however, with several companies prepared, a more general program will be conducted. A traveling display was exhibited in five major offices and at fairs. While the actual sales numbered only 19 installations we have been advised that these were more than in any other division in the west.

One of this year's advertisements, which launches a lighting campaign. Its slogan seems to be an improvement over the familiar "Better Light" of last year

In agricultural power, we signed new business with a total annual revenue of $436,911, or 92 per cent of quota. We lost 72 motors totaling 1,405½ hp. to engines but more than offset this by replacing gas engines with a total of 2,909½ hp. We tested 1,131 pumping plants totaling 38,829½ hp. and were successful in holding 920 installations from competitive power which totaled 32,224½ hp.

To summarize, despite a ½ of 1 per cent decrease in kilowatt-hours, as noted in the first paragraph, in actual dollar accomplishments, we ended 1933 with 126.8 per cent of quota, and an estimated annual revenue of $4,345,127. Our average domestic kilowatt-hour consumption last year was held at 733 kw.-hr., and revenue per domestic consumer averaged $32.71.

For 1934, with a seasoned sales crew, a seasoned sales plan strengthened by several years of hard experience, and with the continued faith of the management in the sales department, we will spend, not including advertising, $700,000 on electric sales activity, expected to yield us an annual revenue of $3,529,632.

We have filed before the Railroad Commission and have approval of a new domestic promotional rate which will materially assist the industry to sell ranges, water heaters and air heating. It is similar to our present domestic schedule, except that when a consumer installs a limiting device or double throw switch in connection with an electric range, he is entitled to the new low block rate of 1 cent per kw.-hr. This prevents the overloading of service facilities at a peak, but enables the customer to obtain water heating or air heating during the time the range is not in use, at the low rate. We confidently expect that this will enable us and dealers to sell well over our 3,000 quota of water heaters this year, especially when we have an exceptional bargain in a 3-kw. water heater to offer. This will truly be a bargain rate in kw.-hrs. available to those who are entitled to it, the range users. It will also help us to spread our demand over a wider range.

We will continue our bonuses to salesmen on dealer sales, and our wiring allowances on equipment replacing competitive fuels.

Thus we feel confident that 1934 will see our sales lines advance, that we will no longer just hold the front but will drive back into new business gains in every field. With dealers and distributors, organized to make sales in this fine cooperative endeavor, the Electric Appliance Society, with manufacturers and wholesalers all pointing to the same objectives, 1934, we feel, will be a real turning point toward better times.

. . . Southwest

San Diego Consolidated Gas & Electric Co.

By A. E. Holloway,
Vice-President in Charge of Sales

DURING 1933 our company carried on extensive cooperative campaigns. There were sold 125 electric ranges, 80 water heaters and 3,200 refrigerators by the dealers and company combined. The sale of ranges and water heaters dropped off slightly because the introduction of natural gas into a great part of our electric range territory. We have set up approximately the following quotas for the coming year on these same items: electric ranges, 200; water heaters, 80; refrigerators, 3,400.

The average domestic kilowatt-hour consumption for the year ending Nov., 1933, was 622 kw.-hr.

A great number of cooperative sales campaigns were conducted with the help of electrical, radio, refrigerator and appliance dealers. One of the first of these occurred in May for the sale of electric refrigerators, in cooperation with the San Diego Electrical Refrigeration Bureau.

This campaign was very successful and secured a large sale of electric refrigeration units.

An appliance cooperative campaign was carried on in the month of June. This, too, was in conjunction with electrical dealers throughout the city, and while not as successful as the refrigerator campaign previously held, was met with some success.

On the first of October a Mazda lamp campaign was conducted in conjunction with all the distributors and dealers in Mazda lamps in our territory on a basis of filling the empty sockets. Some dealers put out house to house salesmen, but all dealers displayed and promoted the sale of lamps during the month of October.

Probably the most successful campaign carried on during the year was

Again this year range salesmen of P.G. and E. will cook meals, act as hosts to bridge teas, etc., in order to explain the beauty, the convenience and the automatic features of electric cookery

that organized by the company and the Radio, Refrigerator and Appliance Bureau of San Diego, which began with an electrical show held on the Municipal Pier during Electric Refrigeration Week. This show was attended by over 55,000 people and was an entire success. The Bureau won third place in the national contest for it.

We feel that a great deal of the success in placing the great number of electric refrigerators on our lines during the last year was due to the cooperation of the San Diego Electrical Refrigeration Bureau.

The final cooperative campaign was started on Nov. 24, at which time all the refrigerator, appliance and radio dealers of the city gathered at a dinner to hear the plans developed by the Bureau of Radio & Electrical Appliances of San Diego County. This compaign embraced the advertising of electrical Christmas gifts by all appliance dealers, using the radio, newspapers, bill boards and other mediums. Dealers report very successful Christmas sales of appliances.

Practically all of the campaigns during the past year were cooperative with the dealers in the territory, and we have secured through the Bureau much help in the building of our appliance load.

During the year 1934 it is planned that similar activities will be carried on, but the plans have not, as yet, been developed for these activities.

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Los Angeles Bureau of Power & Light

By A. W. Elliott,
Business Agent's Division

OUR sales activities will continue as in the past, being entirely cooperative activities with the dealers, which we find is getting us the best results, considering the conditions as they prevail today. Particularly are we going to continue the "dealer demonstration" idea in all our branch offices. For example, the dealer will furnish the demonstrator and the salesmen, the Bureau, the sales supervisor, who is responsible for the placing of equipment and the furnishing of food supplies. The supplies, such as ice box cookies, rolls, etc., are prepared in our demonstration kitchen at 211 So. Broadway, and can very easily be baked in the demonstration range in the branch offices without entailing any great amount of extra labor or inconvenience to the office force.

Very simple things are served, such as ice box cookies, or hot biscuits and coffee. This activity, particularly, has brought results to the dealers. Continued advertising for 1934 will be concentrated on the theater cooking schools, radio and billboards, with some newspaper advertising to tie in. Direct mail and employee campaigns will follow in the early Spring.

Ranges added to the system in 1933 were 725; water heaters, 45; domestic refrigeration units added, 7,500. Quotas for the coming year are: ranges, 600; no quota is set on water heaters or refrigerators. The average kilowatt-hour consumption per residential consumer in 1933 was 580; the goal for 1934 is 600.

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REFRIGERATION WEEK
June 15th to 21st
IS GOING OVER IN A BIG WAY
Demonstrating
"How An Electric Refrigerator Pays For Itself"
This is the week that 400 Food Dealers are offering food bargains in perishables. Not a few are offering the "makin's" of a thrifty Dutch Lunch, including cold meats, salads, 3.2, etc. Others suggest the purchase of larger sized canned foods storing the leftovers in your Electric Refrigerator.
American housewives now list Electric Refrigeration among the necessities to healthy, convenient, enjoyable living. 12,000 San Diego homes are now equipped with automatic refrigeration. Local dealers report 1,000 sales since January 1st, 1933. It is our hope that Refrigeration Week will convince you to start NOW enjoying the thrift and pleasure of an Electric Refrigerator.
The Gift Supreme! Electric Refrigeration
$50.00 IN GROCERIES
GIVEN AWAY for the 12 Best Answers to the Question—
"How Does An Electric Refrigerator Pay For Itself?"
1st Prize $15.00 In Groceries
2nd Prize $10.00 In Groceries
10 Prizes $2.50 each In Groceries
"REFRIGERATION SPECIALS"
Name
Address
Name of Store Receiving this Answer
ELECTRIC REFRIGERATION BUREAU OF SAN DIEGO
506 Electric Building

San Diego Consolidated Gas & Electric Co. advertising was practically all done for cooperative programs, such as this history making grocery-refrigeration tie-up

▼

Los Angeles Gas & Electric Corp

By Jessica B. Taylor
Appliance Department

AS you know, we do not merchandise, as we are cooperating with the dealers in the local territory. We are unable to furnish data regarding the number of ranges, water heaters and refrigerators sold in our territory during the past year, as we would have to get this information from innumerable dealers, and they seem reluctant to give out this information. However, we can give a resumè of the kilowatt-hours sold, active meters for 1932 and 1933, as well as our gain in active electric meters in the following table:

	Mean active meters	Kw.-hrs. sold 1933	Average	Mean active meters	Kw.-hrs. sold 1932	Average
Light	143,259	180,502,247	1,260	143,448	189,150,576	1,319
Power	9,875	95,240,721	9,645	9,805	96,383,203	9,830
Total	153,134	275,742,968	1,801	153,253	285,533,779	1,863

For 112 months ending November

Another sign of gain was made in the records of active meters as reflected in the 12-month period ending Nov. 30. In 1932 there were 2,677 light meters lost, 130 power meters gained, or a total loss in active meters of 2,547. In 1933 there was a gain of 2,301 light meters, 10 power meters, or a total gain of 2,311 meters. While the average kilowatt-hours sold during the 12 months ending Nov. 1933 was less than for the previous period, yet the trend indicated that we are experiencing a gain in active meters, especially in light meters.

▼

Southern California Edison Co., Ltd.

By. W. L. Frost,
Vice President

LOOKING back at 1933, critically perhaps, but without any particular animosity, we of the Southern California Edison Co. Ltd., feel that it was a great educational year, one of exploration and discovery—a real turning point year. We feel that we have learned a great deal, and for that, to 1933 we are grateful.

The smoking hot ride down the early 1933 toboggan of general business eased off considerably as we rounded the mid-July curve and at the close of the year, as we cooled off a bit and were able to look, with regained equilibrium, over the downs and ups, we felt that maybe after all the ride was worth the price of admission. At any rate, there's no going back. No one ever heard of a logger riding a log back up the river after it had reached the mill.

Without indulging in analytics, we can say that beginning with the middle of last July, the electrical power output of the Edison Co., on the basis of a week-by-week comparison with the corresponding periods of the previous year, turned definitely upward. The rising curve, continuous with but two deviations that reflected holiday conditions, has ranged from .98 per cent increase at the outset to as high as 11.14 per cent increase for one week in November. This favorable condition with respect to output gain of the Edison Co. is indicative of the trend of other Pacific Coast electric utilities and parallels closely the national trend.

There is no need here to reiterate the well established fact that the demand for service of the utilities is one of the best barometers of business conditions generally because the utility industry is the servant of all industries—manufacturing, agriculture, transportation and commercial establishments of all kinds. With this in mind, it is noteworthy that the increased demand for electrical energy in Southern California, and probably in the United States as a

whole, has been particularly marked in the industrial load.

A review of the system load records of the Southern California Edison Co. for 1933, statistically pitted against 1932, offers no occasion to arise and cheer, but at the same time the fact that many of the load classifications held their own is one of the pleasing indices of general improvement. Looking at the whole picture, there yet remains to be regained about 40,000 hp. of total light and power load to balance 1933 against 1932, a situation not at all deplorable when viewed in the light of full consideration of the general business state. For the purpose of the record, the following load figures, as of Dec. 31, 1933, are given:

Total consumers	481,056
Lighting	569,891 hp.
Non-agricultural power	467,646 hp.
Oil field power	156,090 hp.
Agriculture	299,199 hp.
Railroads	143,555 hp.
Other electric corporations	61,381 hp.
Municipal	383,664 hp.
Miscellaneous power	60,680 p
Heating and cooking	336,145 hp.
Total power	1,908,360 hp.
Total light and power	2,478,251 hp.

One of the brightest spots in the silver lining on which we are now looking is something relatively new, the revised commercial policy and program which the Edison Co. offered to the electrical trade and the Southern California public in November of last year. This revised plan, which was labeled the 1934 program although it was put into effect in November, was designed to produce business. It was not merely an impressive gesture, and the $1,000,000 appropriated to put the plan into effect is not stage money.

The beauty of the new plan is that it works. Our cooperative effort with dealers has been and is bearing fruit. The results of the Christmas range and refrigerator campaign, the first move in the new program, were splendid. And in counting results, we count not only business gained but experience gained as well. Throughout the entire program of cooperation with dealers, our company is assuming the responsibility and the cost of educating the public to use more electrical appliances, through a generous advertising appropriation and energetic sales promotion activity. We of course expect that the cooperation we are extending will beget cooperation, and the ready response of many dealers thus far has proved that our expectations are not amiss.

Until virtually the close of the year, it appeared that 1933 would be a sad year for merchandising quotas. Then, with the injection of the new program stimulant, we concluded our 1933 efforts with a very respectable showing. Several quotas which had been given up as unsalvagable pulled out of 1933 under their own power, and others did even better, proving again that no quota should be abandoned on the beach as long as the crew can stay aboard.

Edison sales of electric ranges, water heaters and refrigerators during 1933 were 1,000, 75 and 600, respectively. Dealer sales in our system territory

Attractive, modern display, designed by Los Angeles Bureau of Power & Light and used by the Junior Cookery Council in many fairs and exhibits

were recorded as ranges 250, water heaters 50, and refrigerators 7,500.

The joint efforts of the dealers and the company are expected to put 3,200 ranges and 16,000 refrigerators on the lines in 1934. Range and refrigerator sales, of course, will be by the dealers.

Answering all of the usual resistance questions before they are asked, this advertising of Southern California Edison Co., reprinted for window stickers, paved the way for sales

WOMEN!
Can You Answer These 16 Questions on Electric Cookery?
16. You Want It... You Can Afford It
It Will Pay You to Investigate Now
FREE INSTALLATION
See the New Models Inside
Get Your Electric RANGE Now

The water heater quota for the year is 2,000, with the company proposing to account for 1,350 of them by its individual efforts. Washing machine sales 4,000, and ironer sales 1,000, will be carried on by the dealers, and the appliance quota is 50,000, with 40,000 programed as dealer sales and 10,000 as company sales. The company's individual quota on lighting units is 50,000.

The greater public interest in, and use of, electrical equipment in the home, already apparent in this new year, is expected to place our average annual domestic kilowatt-hour consumption figure again on the upgrade. The average for the past year was 681 kilowatt-hours, approximately six per cent below the 1933 average.

By the time this cursory review of 1933 and optimistic preview of 1934 appears in type, we of the Edison Company will be well into the second phase of our new year program, the January-February campaign of building up load through strenuous work by all hands. Every department in the business has taken off its coat, rolled up its sleeves, and there will be no letup in our own activity and in our activity in cooperation with the electrical trade to put 1934 on record in the gallery of years as the big electrical year.

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Southern Sierras Power Co.

By George T. Bigelow,

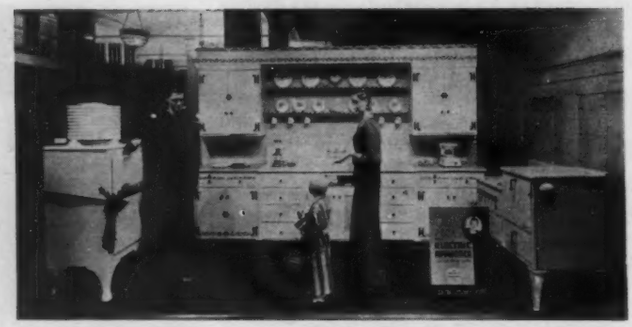
Manager Commercial Dept.

WE do not set quotas except on the three major appliances, as these are the only ones on which we make a hard drive, leaving the balance of the appliances largely to the dealers and other merchants. We have not changed our policy in this matter in any regard. In the household, commercial and power load we have not found any substitute yet for hard work. I feel, though, that the year has shown marked improvement since June, and I look forward to a continued improvement in spite of increased competition and the burden of the politician.

We have added 220 ranges to our lines, 45 water heaters, 380 refrigerators. In 1932, the figures were: ranges, 209; water heaters, 80; and refrigerators 117. We do not have any data on dealers' sales.

Our quotas for 1934 are: ranges, 210; water heaters, 120; and refrigerators, 300. In addition to these we will be very active in selling air conditioning and air conditioning equipment. We have not as yet set a quota on this, although the results of this year point to extremely good expectations for 1934.

Last year our average domestic kilowatt-hour consumption was 942. For 1933 on the basis of 10 months actual and 2 months estimated, I believe the figures will run between 925 and 940. This does not appear to be a very close estimate on the face of it, but we always find November and December add greatly to this figure and I have usually guessed low on it. Let us call it 930.



Exhibits and window displays tie in with programs. At left, above, the theater lobby show of Portland's council. At right, a spectacular Christmas window display of P.G. and E. for the Appliance Society campaign

Cooperation's New Deal

Above: Cover of the consumer broadside distributed by Colorado's electric league each month—an excellent sales stimulant for the entire trade. Below: A tabloid sent out to all domestic consumers by northern California's appliance society

ELECTRIC APPLIANCE SOCIETY
OF NORTHERN CALIFORNIA
APPLIANCES GIVE CHRISTMAS THRILL
ELECTRICAL GIFTS PROVIDE ANSWER TO ANNUAL HOLIDAY PROBLEM

WHEN cooperation was first introduced to the electrical industry, back in its early commercial days, the goals were set high. Like the industry itself, it visioned its future as of wide scope, with statewide, even nationwide movements, coordinated in every locality in a national network of cooperation. But like many ambitious and theoretically perfect programs of expansion, the bigness of it all was its greatest drawback.

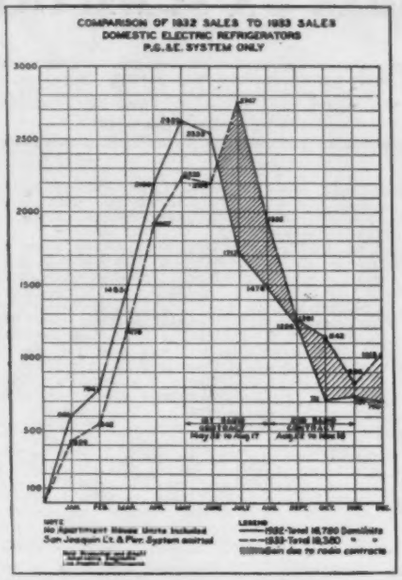
The industry gasped, therefore, when its first nationwide cooperative machinery, the Society for Electrical Development,—the brain child of William Goodwin, whose early cooperative work originated on the Pacific Coast—finally collapsed of its own sheer weight. It had become too big to function, too intricate to run smoothly, two involved to get the speed and action that the industry needed. The headquarters machinery did not seem to be able to penetrate down far enough to touch intimately the single individual, without whose hearty help there could be no success. Cooperation began at the wrong end. It has to work from the ground up.

January saw the same fate meted out to that statewide movement, the Pacific Coast Electrical Bureau, of California. It remains now only as a means of advertising the industry to the public through various media. Otherwise its widespread program, embracing a score of activities and committees, has been abandoned. In its stead have come individual regional activities, intimately wrapped up in the particular commercial and sales programs and problems in each locality.

Such regional activities are particularly effective right now. Denver, which has a seasoned League, promoting the industry in more activities than any other section, has kept its feet solidly on the ground and spread its influence to other regions only under controlled circumstances. Northern California has evolved an integrated program, with special campaigns to run throughout the year, but in so doing has recognized a new trend in merchandising. Its Society, with San Francisco and Eastbay units, and more in formation, is a retail dealer organization. These retail dealers are the large department and furniture stores, the specialty organizations, and in fact, anyone handling electric appliances.

San Diego's prize winning Bureau sprang out of a successful refrigeration bureau. It will expand its work over the complete range of electrical

One of Spokane's refrigerator show announcements—brief but effective



How a radio program built sales for refrigerator dealers in northern California is shown by this chart. Despite price increases in September the year ended with 2,600 units sold more than last year despite a 395 unit handicap at the end of May

appliances this year, still keeping the refrigeration bureau as an identity of itself for refrigeration campaigns. This seems a wise provision. It prevents a diffusion of effort over too wide a front. Those who participate in any given campaign are those who hope to derive direct benefit. It is difficult to sell individuals on general benefits, intangibles.

Each of the associations in the West organized to promote electrical sales cooperatively, were asked specific questions as to their formation, their personnel, their programs and achievements of last year. These have been tabulated on the following two pages for easy cross reference and comparison. One or two such organizations, unfortunately, did not prepare answers to the questionnaire and could not be included. The majority, however, are represented.

A study of these associations will be helpful to any other regional effort along the same lines. Undoubtedly, if more detail is required from any of these organizations, it will be supplied upon request.

EDITOR'S NOTE — Inadvertently figures and facts concerning the Junior Cookery Council of Southern California were omitted from the tables of this survey. See Electrical West, Jan., 1934, p. 3, for some details, officers, etc.

Special editions and special pages, in which the dealers and the bureau or council jointly advertised, gave outstanding attention to the cooperative campaigns—San Diego and Portland pages, shown below, are typical of many

Reinspection of old wiring by the city inspectors was backed up by the Colorado league in dramatic advertisements of this type. The campaign did much for Denver's electrical industry

Warning

To Home Owners, Tenants and Building Managers

The Building Department of the City and County of Denver has issued a new Electric Wiring Code. This Code incorporates laws, in the form of ordinances, governing the installation of electric wiring and equipment, and has the endorsement of the undersigned.

Numerous cases have been brought to the attention of the Building Department wherein these ordinances are being ignored, primarily by janitors and "handy men," who are installing outlets, hanging fixtures and making electrical repairs in direct violation of the Code. In some instances owners have been found guilty of this unlawful practice.

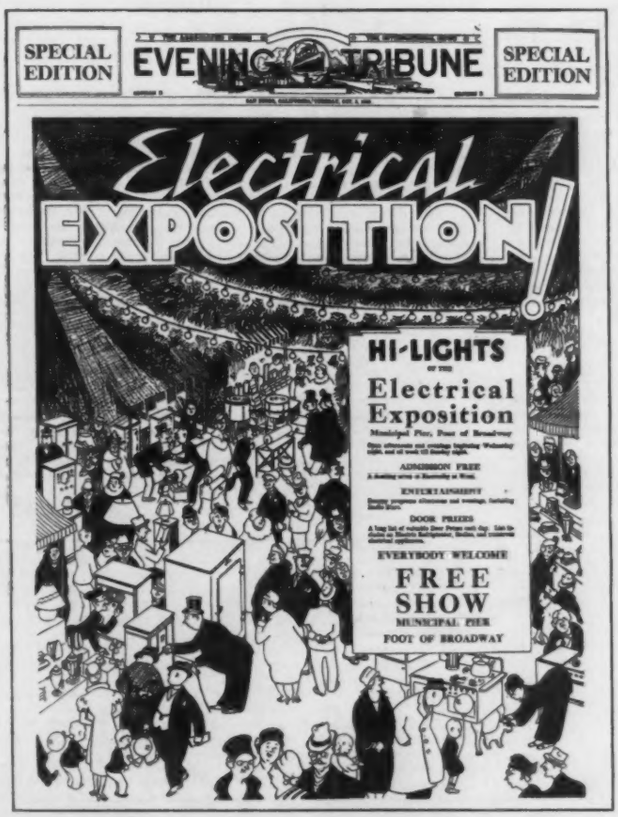
In the interest of safety to life and property the public is reminded that none but reputable, bonded and licensed electrical contractors should be employed to do electrical work of this nature. Whenever you have need to employ an electrician demand to see his credentials and insist that he produce a Certificate of Approval on completion of the installation as your assurance that it has been made in accordance with the new Denver Code.

The Building Department of the City and County of Denver is authority for the statement that anyone found violating the provisions of the ordinance will be

Vigorously Prosecuted

Electrical League of Colorado

Gas & Electric Bldg., Denver



ELECTRIC REFRIGERATOR AND RANGE SHOW
ELECTRO SEALED FOR LIFE
Majestic ELECTROMIST REFRIGERATION
G. F. Johnson Music Co.
There's an automobile show mostly for the men
. . . so why not a refrigerator and range show for the ladies!
Here It Is!
All This Week, May 9 to 15 Inclusive
RKO Orpheum Starts Today
Strictly a Show—You'll Not Be Asked to Buy
See the New L. & H. Electric Range
At the RKO and Lipman-Wolfe's
It cooks dinner . . .
while you're out
Lipman Wolfe's
GE
Compare them all with G-E values!
HEADQUARTERS GENERAL ELECTRIC
The Chicagoan
$100
PEPCO Electric Stores
PAUL SCHATZ
at Powers'
$1 DOWN
$1 WEEK
Full Sized—Full Powered STANDARD 1933
$99.75
POWERS
ORPHEUM

COOPERATIVE ORGANIZATIONS—A SUMMARY

Organization and location of headquarters	Officers and affiliation	Membership by classes, affiliations, and geographical location	How Financed	1933 Shows or Exhibits
Electrical League of Colorado ● Gas & Electric Building Denver, Colo. ● and **Rocky Mountain Electrical Assn.** ● Gas & Electric Building Denver, Colo.	Charles S. Newell, Engineering dept. of Mt. States Telephone & Telegraph Co., president ● George Bakewell, jr., manager ● Directors: Seven from each branch of the industry. ● G. B. Buck, general commercial manager, Pub. Service Co. of Colorado, president ● George E. Lewis, managing director	54 individuals, 5 utilities, 11 wholesalers, 14 manufacturers and mfr. representatives, 15 contractors and contractor-dealers, 4 honorary, 3 associate members. Membership chiefly in Denver, but members and member companies throughout Colorado. ● Utilities in Colorado, New Mexico, Wyoming.	Dues, nominal, and contributions from all classes of members. Separate financing of some special activities such as publishing of "Electri-news." ● Supported by utilities and individual membership.	Jan. 12-17, electric cooking school during Natl. Intermountain Turkey Show. ● Demonstration on store and window lighting to Allied Drug Travelers Assn. convention. ● Two-day lighting school with staff of Nela Park assisting. ● Present G.E. Co.'s "House of Magic" to public during Christmas season; 18,000 attend.
Bureau of Radio and Electrical Appliances of San Diego County ● 506 Electric Building San Diego, Calif.	E. W. Meise, supt. of merchandising dept., San Diego Consolidated Gas & Electric Co., president ● J. Clark Chamberlain, secretary-manager	Department stores, furniture, hardware, radio and any other stores handling electrical appliances; and the utility. 85 members. Includes wholesalers, distributors. Each classification given representation on board of directors. Several Los Angeles distributors also belong. Directors include 1 non-resident distributor, 1 local distributor, 1 city major dealer, 1 dept. store, 1 city minor dealer, 1 northern county retailer, 1 southern county retailer, 1 independent service representative, 1 automotive dealer.	Dues, with distributors paying slightly higher dues. Minimum for out-of-town, small retail outlets $1.00. Promotional and advertising expense carried by the utility.	Electrical exposition at municipal pier, Oct. 4-8. Combines refrigeration show and "Rebuild Prosperity" radio campaign. Won third prize in Natl. Electric Refrig. Bureau contest for successful show.
Spokane Electric Refrigeration Bureau ● care The Washington Water Power Co.	R. B. McElroy, sales manager, The Washington Water Power Co., chairman ● Harvey Brassard, secretary	Refrigerator distributors and dealers and utility. Distributors are responsible for the activities of the bureau and in turn function for their dealers. ● Executive committee of dealers	Activities individually financed. No dues. Utility finances up to 50 per cent of cost of a cooperative activity.	Combined cookery and refrigeration exhibit at Davenport Hotel in Spokane.
Electric Refrigeration and Cookery Council of Oregon ● 707 Spalding Bldg. Portland, Ore.	George L. Samis, Sunset Electric Co., chairman ● S. G. Ward, Graybar Electric Co., vice-chairman ● Berkeley Snow, secretary N.W. Elect. Lt. & Power Assn., secretary	Distributors of ranges and refrigerators in Oregon and Portland trade territory in Washington; and utilities. No dealers as members. Small council works better. Distributors responsible to operate plans with their dealers. 9 distributor members, 6 utilities. One individual of each firm acts as official representative. No manufacturer members unless representative acts as a distributor.	Small assessments from member companies, or distributors. More substantial portion by the utilities.	Combined range and refrigeration exhibit in lobby of Orpheum Theater, Portland.
Electric Appliance Society of Northern California ● 180 New Montgomery St. San Francisco, San Francisco Unit 447 Sutter St. East Bay Unit 17th and Clay Sts. Oakland, Calif.	L. J. Breuner, John Breuner Co., president ● H. M. Crawford, general sales manager, Pacific Gas and Electric Co., secretary ● B. W. Reynolds, P. G. and E. Co., promotional director ● For directors, see Electrical West, Jan. 1934, p. 9	All types of retail outlets selling appliances, wholesalers and distributors and the utility. Membership is by firm rather than individual. Organization of several more units now in process. Began organization in Fall, starting with large department and furniture stores, distributors and wholesalers. Central organization formed first. Units later. Officers and directors of latter elected from dealers, wholesalers and distributors in each locality.	Financed by wholesalers, distributors and the utility. Particular campaigns in 1934 to be supported by the distributors and manufacturers of appliances to be featured. Christmas campaign by the entire group. Utility matches dollar for dollar supplied by other groups.	No shows as a group, but many retailer members used P.G. and E. Co. "5 cent's worth of electricity" exhibit as background for individual electrical shows or exhibitions in their stores.
Electric Refrigeration Bureau of Northern California ● 245 Market St. San Francisco	John Wrenn, P.G. and E Co., chairman ● J. T. Templeton, Colvin-Templeton Co., secretary	Maintains separate identity from Electric Appliance Society although membership is composed of many of same distributors. Membership chiefly wholesalers and distributors, who operate program through their dealers or retail stores.	By distributors and the utility. Advertising done chiefly by the utility.	Exhibited at Food Show in San Francisco and in each of P.G. and E. Co. district offices. Also at California State Fair, Sacramento.
Pacific Coast Electrical Bureau ● 447 Sutter St. San Francisco	● W. L. Frost, vice president, Southern Calif. Edison Co. Ltd., chairman ● R. E. Fisher, vice president, P.G. and E. Co., vice chairman ● K. I. Dazey, managing director	25 directors representing all branches of the industry: 4 contractors, 5 manufacturers, 4 wholesalers, 1 publisher, remainder utilities of California. Statewide program. No individual membership. Three field representatives in 1933.	Subscriptions from the manufacturers, wholesalers and the utilities, the latter contributing the greatest share.	

OF THEIR ACTIVITIES AND PROGRAMS FOR 1934

1933 Campaigns and Activities	1934 Plans and Program	Remarks
Cooperation with city elect. inspector in war on "bootleg" wiring, advocating re-inspection. Launch identified cord movement in retail trade. Distribute "Cost of operation" cards to retail dealers. Promoted Red Seal Plan of wiring. Radio broadcasts during "Better Homes Week" on wiring and appliances. Promote "Better Light —Better Sight" campaign, also "Rebuild Prosperity" radio campaign. Held annual industry picnic in July; golf tournament in Sept. Held meetings for distributors and dealers to take advantage of visits of Dr. G. W. Allison, Natl. Elect. Refrig. Bureau; A. H. Jaeger, Natl. Electric Cookery Council. Published weekly members' bulletin, "Contact." ● **Jointly with R.M.E.A.** Preparation of "Code of Merchandising Practices" with retailers associations. Held Electrical Industry Sales Rally which promoted Christmas outdoor lighting contest. "Give Something Electrical for Christmas" crusade, monthly publication of consumer booklet, "Electri-News", covering Colorado, New Mexico, Wyoming. Latter financed by individual firms and utilities for free distribution.	Program similar to 1933 in regards wiring promotion and general activities. A definite 6-months campaign has been laid out in cooperation with R.M.E.A. on appliance promotion as follows: **Jan.**—"Protection" yard lighting, irons, radio, sun lamps, heaters, heating pads. **Feb.**—School for distributors' salesmen on ranges, in Denver. Joint range and refrig. shows. Campaign irons, radios, health lamps, waffle irons, heaters, clocks, heating pads. **Mar.**—Garden lighting, lamps, commercial refrig., radios, laundry equipt., vac. cleaners, sun lamps, waffle irons, coffee makers, heaters, clocks, heating pads. Range school for dealer salesmen in Denver. **Apr.**—Household refrig. and air condit. exposition, for utilities and other outlets, Denver. Campaign lamps, garden lighting, laundry equipt., auto radios, mixers, cleaners, coffee makers, heaters and heating pads. **May**—Joint range and refrig. public show, Denver. Campaign garden lighting, sports lighting, sign lighting, irons, auto radios, mixers, cleaners, coffee makers, fans, motor driven appliances. **June**—Joint range and refrig. luncheons for women's organizations. Household refrig. and air condit. exposition still on. Campaign garden lighting, sports lighting, filling station lighting, irons, auto radio, laundry equipt., mixers, cleaners and fans.	January clearance of all appliances was planned. ● Electrical Industry Sales Rally, which sponsored Christmas campaign and the 1934 six-months program at the left, was initiated by **R. M. E. A.** in cooperation with Electrical League of Colorado. "Code of Merchandising Practices" was worked out by R.M.E.A. and Elect. League of Colo. and Mt. States Hdw. & Implement Assn., and Colo. Society of Sanitary & Heating Eng. Christmas campaign brought all retail outlets into the plan. Feature of Christmas program was work of Women's Division — 300 women employees of utility, wholesalers and dealers.
Refrigeration week, June 15-21, launched big sales drive, using all mediums to advertise. Also tie-in with 400 individual grocery and food stores, who featured Refrig. Week Specials. Essay contest with food prizes bought from participating stores. Pacific Coast division winner of Legion of Honor Contest of Natl. Refrig. Bur. Goodfellowship meeting launches Christmas cooperative drive, including big advertising campaign featuring simultaneous radio broadcast from two stations. 1,000 in. newspaper space, billboards, etc. Slogan, "Let's Give Something Electrical."	Plan to become even more active than in 1933. Goodfellowship meeting Jan. 30, Clark Baker, speaker on lighting and merchandising, launches year's activity. Advertising program announced. February meeting planned to act as "spark plug" for spring refrigeration concentrated campaign. Appliance campaigns throughout year to follow Pacific Coast Electrical Bureau employee pamphlet releases. Another electrical exposition planned for October. Another big Christmas appliance campaign in December.	May shorten name of orzanization, which is an outgrowth of the Electric Refrigeration Bureau of San Diego. The latter still retains a separate identity for strictly refrigeration activities. New name favored is "Electric Bureau of San Diego."
Two cooperative activities: In Spring, a combined refrigerator and cookery exhibit. In the Fall, a cooperative advertising program.	No definite plans yet. Depends upon National campaigns not yet announced.	
Schools for range and refrigerator salesmen of dealers and distributor members. Cooking schools in 9 towns in Oregon outside Portland, demonstrating both range and refrigerator on stage (See Electrical West, June, 1933, p. 226). Electric range campaign in Portland with a special wiring price offer of $10 as inducement (See Electrical West, Nov., 1933, p. 7).	Plans for 1934 not yet formulated.	Since Jan. 1, George Samis severed connection with Sunset Electric Co. to become administrator for Oregon Liquor Commission. Resigned as chairman of Council. Not yet replaced.
Started only in Fall. One campaign carried on for Christmas, featuring, "This Christmas, Give Her the Electrical Appliance She Has Always Wanted." Used from Nov. 30 to Dec. 23 besides utility advertising. Received 1,539 in. publicity. (During 1932 accurate check 10,508 col. in. newspaper space in S. F. and Eastbay shows only 7,002 in. of space used by dealers.) Circularized 90,000 selected homes in San Francisco, Oakland and Berkeley with 4-page tabloid, featuring appliances. Distributed two sizes of dealer display cards for floor and window display. Girls speaking club of utility enlisted to stimulate shopping.	Six campaigns planned. **March**—vacuum cleaners. **May**—refrigerators. **June**—all small appliances. **Sept.**—washers and ironers. **Oct.**—radio. **Dec.**—all Christmas appliances. ● Plans are being perfected now for the March cleaner campaign. ● Industry meeting to be called in conjunction with San Francisco Electrical Development League, Feb. 12, to present the Society's plans and program for the year.	Modeled along the lines of a very successful Gas Appliance Society which has operated in northern California for several years. The significant point of this new organization has been that the large department, furniture and housewares stores either have created new electrical departments or enlarged existing departments and given electric appliances a new place in the sun.
Carried on an exceptional twice weekly broadcast over two stations, a radio cooking school, with Lauretta La Marr, home economist, lecturing. As tie-in, offered free weekly meal plan and recipe booklet, "Kitchen Secrets", available only at dealer stores or used by salesmen as contact makers and door openers. Dealer meetings held when Dr. Allison visited San Francisco and Oakland.	Radio program is being carried over into 1934. Plans for a refrigeration show this year are in consideration. Probably will work with Electric Appliance Society in this.	Bureau's radio program is found to be exceedingly effective selling tool by many retailers who take full advantage of it and follow through after each broadcast by distributing "Kitchen Secrets" to prospects and users.
Promote trade harmony. Code and ordinance committee promotes standard electrical ordinance for cities and counties; many adopt it. Standard appliance sales ordinance adopted in several cities. Red Seal wiring, residential, and commercial, promoted. Worked out new rewiring standards just issued. Promoted "Electrical Week" throughout state for appliances. Attic Ventilation campaign in southern California. Employee education bulletins on appliances issued monthly beginning Nov. Industral committee studied comparative fuel costs. Cooperation with Committee on Relation of Electricity to Agriculture. Mailed "Electricity on the Farm" book to all requests from magazine advertising program. Lighting lectures by Clark Baker throughout state, to dept. store staffs, architects, employee organizations—201 groups, 23,236 people. Shaded light window display circulated in each region.	Budget for year clipped to almost nothing. Field staff dropped. Only lighting lectures by Clark Baker and magazine advertising to be continued. Fate of Red Seal, rewiring, ordinance, industrial and agricultural work undecided.	Fate of Bureau indicates trend away from statewide or large unit operation to more localized activity, although its removal leaves large gaps unfilled. There is no activity now designed to open and keep open the "bottleneck" of electric consumption—wiring.

What's New?

Edison Budget Set at $14,750,000

Southern California Edison Co. will be instrumental in the distribution of approximately $14,750,000 in its territory during 1934 in new construction, operation and maintenance, taxes and payrolls, according to the announcement of Harry J. Bauer, president. The company's board of directors has approved the budget and the new business program for the new year. The $14,750,000 to be distributed is exclusive of bond interest and other payments for the use of capital.

Funds of the 1934 budget for payroll, operations and maintenance and new construction, total approximately $9,700,000. The bulk of the new construction work will be done this year to meet the requirements of new business. For the most part, this new construction will be extensions and reinforcements of existing service lines and the reinforcement of distributing station facilities.

Commenting further upon the distribution of funds to be made by the company this year, Mr. Bauer said that the Edison tax bill will be approximately $5,050,000, or about 34 per cent of the total to be distributed during the twelve months.

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Oregon Commissioner Orders Salary Cuts

Management fees, donations and a portion of executives' salaries were cut from the budgets of several utility companies in Oregon in a recent series of orders by the public utilities commissioner. Electric, gas, water and telephone utilities, both large and small, operating in the state were affected. The orders uniformly eliminated from proposed 1934 operating expenses all service and management fees, practically all donations and club dues, and from 10 to 45 per cent of the salaries of executives receiving $5,500 or more a year. The orders were based, according to the commissioner, on that part of the Oregon regulatory law giving the commissioner "control over the budgets of expenditures of public utilities as to all items covering payment of salaries of executive officers and donations."

The commissioner states that his findings have the effect of prohibiting the rejected expenditures from being recognized as items of operating expense in any proceeding involving the rates for service charged by the company. The orders were issued in most cases without hearings and the Pacific Telephone & Telegraph Company has instituted proceedings in the Federal Court to enjoin the commissioner from his action in its case, and has obtained a temporary injunction. Several electric utility companies have filed formal protests against the orders.

Some of the electric utility companies affected by orders issued between Jan. 1 and 10 are Mountain States Power Company and The California Oregon Power Co., Medford, Northwestern Electric Co. and Pacific Power & Light Co., Portland; Eastern Oregon Light & Power Co., Baker, Hermiston Light & Power Co., Hermiston. The commissioner indicated that a similar order with respect to the Portland Electric Power Co. would be forthcoming after a hearing.

In the case of executive officers' salaries, the reductions amounted to 20 per cent or more in the higher brackets, running to 45 per cent in the case of Paul B. McKee, president of the Northwestern Electric Co., Pacific Power & Light Co., and Portland Gas & Coke Co. Cuts in the medium high brackets were from 20 to 30 per cent, while those receiving $5,500 or $6,000 were cut about 10 per cent. Many of the donations disallowed were for community chest and other charitable organizations in the various communities served by the companies concerned, and the commissioner stated that such expenditures were to be commended and there would be no objection offered if these contributions were made out of surplus belonging to the stockholders.

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No Damages to L. A. Utilities Through Storm

Electric utilities serving in Los Angeles county went through flood conditions of serious consequence on Dec. 31 and Jan. 1 with no loss of property and with no system interruptions of service. A few cases of minor distribution trouble, entirely local in character, were reported.

Rainfall for the storm in Los Angenes measured 8.27 in., the greatest twenty-four hour total recorded since the establishment of the local office of the United States Weather Bureau in 1877. The storm raised the season total to 11.99 in. Normal in Los Angeles is 4.91 in. for this time of year. The storm total for some valley sections adjacent to Los Angeles exceeded 13.00 in. and was as great as 18.50 in. in some of the mountain areas north of the city.

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¶Work of erecting steel towers for the Los Angeles-Boulder Dam transmission line has been undertaken by crews of the Los Angeles Bureau of Power and Light. Starting at Cajon Pass and working eastward more than 40 towers of the 2,530 single circuit structures had been erected by Jan. 15. Work of erecting the 271 double circuit towers from Cajon Pass to Los Angeles will not be undertaken until later in the year. Stringing of the 1.4-in. hollow copper conductor will start in April and the entire line scheduled for completion some time early in 1935.

Work to Start on Parker Dam Project

Work on Parker Dam on the Colorado River will be started within two months as the result of approval by PWA of the Metropolitan Water District's application for funds. An initial allotment of $2,000,000 has been set aside, of which $1,700,000 is to be used for labor and materials with 30 per cent of this money, or $510,000, as an outright grant.

The Parker Dam unit of the Colorado River aqueduct is to be built by the federal government in accordance with a contract with the Metropolitan Water District. Total cost is estimated at approximately $13,300,000. The dam is situated in Parker Canyon about 16 miles north of the town of Parker, Ariz., and marks the intake of the aqueduct system. It will form an auxiliary storage reservoir for aqueduct water after it has been released from Boulder Dam, 155 miles to the north.

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Federal Appeals May Be Denied Utilities

Legislation designed to enjoin public utilities from using the federal courts as injunction weapons to fight state regulatory commission orders has been introduced in the United States Senate by Sen. Hiram Johnson, of California. His bill would amend the United States Judicial Code with respect to the jurisdiction of the district courts over suits relating to orders of state administrative boards.

The measure would amend Sec. 24 of the Judicial Code as amended by adding the following:

> Notwithstanding the foregoing provisions of this paragraph, no district court shall have jurisdiction of any suit to enjoin, suspend, or restrain the enforcement, operation, or execution of any order of an administrative board or commission of a state, or to enjoin, or restrain any action in compliance with any such order, where jurisdiction is based solely upon the ground of diversity of citizenship, or the repugnance of such order to the constitution of the United States, where such order (first) affects rates chargeable by a public utility, (second) does not interfere with interstate commerce, and (third) has been made after reasonable notice and hearing, and where a plain, speedy and efficient remedy may be had at law or in equity in the courts of such state.
>
> The provisions of this act shall not affect suits commenced in the district courts, either originally or by removal, prior to its passage; and all such suits shall be continued, proceedings therein had, appeals therein taken, and judgments therein rendered, in the same manner and with the same effect as if this act had not been passed.

▼

¶Public utilities of California will be required to report all dues, donations, subscriptions and contributions in a detailed manner as the result of a new order recently issued by the State Railroad Commission. Heretofore these items have generally been listed as a lump sum under the heading of miscellaneous expense. The new order requires detailed reports on such payments "whether made or paid directly or indirectly by increasing employees' salaries to offset them."

U. S. Supreme Court To Decide Seattle Tax

Validity of the 3 per cent license or occupation tax imposed upon the Puget Sound Power & Light Co. and the Seattle Gas Co. by the city of Seattle will be decided by the United States supreme Court as the result of an appeal from a decision of the Washington Supreme Court filed by the two utilities. The attack on the validity of the tax statute was directed principally on the ground that the city was in the electric light and power business and, although an active competitor of both utilities, was free from the tax it imposed on their gross revenues.

In arguing the appeal in Washington, D.C., counsel for the companies pointed out that the municipal plant, exempt from the license tax, was in a position to undersell them in unfair and ruinous competition. The assertion was made that unless prohibited from levying such a tax that the city was in a position to raise the license charge to a rate which would deprive the companies of all profit and amount to confiscation of their property.

In reply to a question by the court as to why the exemption of the municipal plant from the license tax was more objectionable legally than the exemption of city-owned real estate from property taxes, counsel pointed out that the property tax, unlike the occupation tax, was levied on all privately owned property alike by the city acting in a governmental capacity. Counsel insisted that when the municipality entered into competition with private business, it was permitted to crucify its competitors if it desired should it be authorized to impose on them a license tax from which it was exempt.

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Death Takes Three Denver Electrical Men

Death removed three members of the electrical industry of Denver during January. Clare N. Stannard, vice-president and general manager of the Public Service Co. of Colorado, died Jan. 3, a victim of pneumonia. John F. Greenawalt, assistant to the president of the Mountain States Telephone and Telegraph Co., passed away Jan. 1 following an operation, and Charles J. Hancock, Public Service Company district manager of Idaho Springs, died Jan. 15.

Mr. Stannard was known as an outstanding leader in the electrical industry in the Mountain states and as a personal friend of almost every individual in the organization which he headed. Born in Friendship, N. Y., he received his high school education at Binghamton and associated himself with the Binghamton Gas & Electric Co. as a cadet. Poor health sent him to Colorado in 1897, where he became affiliated with the Denver Tramway Co. as master mechanic and later in the auditing department. In 1898 he went to work for the Denver Consolidated Electric Co. as bookkeeper, meter reader and cashier. It was at this time that Henry L. Doherty entered the Denver utility field and there was formed a friendship which lasted a lifetime.

In 1922 Mr. Stannard became general manager of the Denver Gas & Electric Light Co., which was the outgrowth of several mergers. He held this position throughout the period of growth of the company, building the utility into its present position of the largest in Colorado. By a queer coincidence Mr. Stannard was born Nov. 13, 1869, the same day on which the pioneer gas utility of the Rocky Mountain region, the Denver Gas Co., predecessor of the present utility, was incorporated. His birthday and that of the company he headed has been observed for many years with a celebration in which employees and public have participated. He was an active figure in Denver civic affairs and in the American Gas Assn.

CLARE N. STANNARD

Mr. Greenawalt had been associated with the telephone company for thirty years, ever since he sold his newspaper in Florence, Colo., and joined the company at Colorado Springs. He served successively in Montana and Utah and in 1915 became publicity manager at Denver. In 1928 was promoted to the position he held when he died. He was an active figure in Denver electrical affairs and for many years had been a director of the Electrical League of Colorado.

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¶ **Continued construction** of the Colorado River aqueduct has been assured by the sale of a $8,064,000 block of bonds to the Reconstruction Finance Corp. by the Metropolitan Water District directors. This sale brings the total amount of bonds disposed of to the R. F. C. up to $22,176,000, with all bonds bearing 5 per cent interest.

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¶ **Sacramento Utility District's** allotment of $11,700,000 for the Silver Creek water supply project, which also incorporated power generation features has been withdrawn by the PWA. Failure to take the necessary steps to assure immediate construction of the project, plus the fact that funds are needed in other states were given as reasons for the action.

Bone Bill Loses in Washington Senate

Failing to secure the necessary two-thirds vote in the senate, the Bone super-power constitutional amendment will not appear on the Washington ballot in November. The amendment was designed to give the state authority to produce and engage in the sale of power and to develop and operate either separately or in conjunction with the federal government water power sites and water rights for the production of electrical energy and the sale or distribution of power.

It would have permitted the state to incur indebtedness not to exceed 5 per cent of the assessed valuation of all property notwithstanding any limitations elswhere in the Washington constitution and to issue general obligation bonds or utility or revenue bonds in an amount estimated as approximately $50,000,000. It was especially intended to allow the state to build transmission lines to connect existing city systems and the federal hydro-electric projects at Grand Coulee and Bonneville and to carry power to utility districts to be created under the Grange district power act.

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Spokane Tax Is Compromised

Following an open meeting of the Spokane city council at which 500 citizens vigorously protested the contemplated elimination of 382 street lights, the city commissioners have accepted the compromise proposal of local utilities regarding the payment of the new public utility tax.

Some time ago the city levied a three per cent gross earnings tax on the utilities which the latter refused to pay, offering to compromise on a basis of one and one-half per cent, which compromise was rejected by the city council. Negotiations stopped there awaiting the outcome of a similar case which has been carried to the United States supreme court by the city of Seattle. In the meantime the city council, cutting its budget to conform to the recently enacted 40-mill tax limit law, marked 382 street lights for elimination.

Citizens took up the fight against the removal of the street lights. Finally the matter was settled on the following basis: the Washington Water Power Company agreed to pay $34,000 instead of the $80,000 estimated under the three per cent tax; the Home Telephone Company agreed to pay $14,000 with the understanding that the city council will not oppose transfer of its property to the Pacific Telephone, and taxes on other utilities were proportionately reduced.

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¶ **Lighting fixtures** for the San Francisco post office addition will be supplied by the Moe Bridges Co., of Milwaukee. The contract price for the fixtures is $3,036.

Two Edison Company Veterans Retire

Two veteran officers of the Southern California Edison Co. who retired from active duty on Jan. 1 after nearly forty years of continuous service, were honored Dec. 28 at a luncheon in the Edison building given by Harry J. Bauer, president of the company. The two veterans are W. L. Percey, vice-president in charge of corporate contracts and documents, and Benjamin F. Pearson, manager of industrial relations.

Both became identified with the electrical industry in Southern California in 1896. Mr. Percey, on July 23 of that

W. L. PERCEY

year, joined the West Side Lighting Co. He was the entire office staff of the company, and had his headquarters in a room in the Byrne Building at Third St. and Broadway, Los Angeles. Mr. Pearson first was employed by the Redlands Electric Light and Power Co. on Jan. 9, 1896. The company organized the Southern California Power Co. and began the construction of the Santa Ana River Powerhouse No. 1, which today is operated by the Edison Co. as one of its several hydro-electric plants. Mr. Pearson's first jobs were cutting brush on the site of the new plant and running a donkey engine during the construction. Both men have held many offices of importance in the Edison organization during their many

B. F. PEARSON

years of service and retire with full company honors in accordance with the company's retirement plan.

Mr. Percey became assistant secretary and assistant treasurer of the Los Angeles Edison Electric Co., the outgrowth of a re-organization of the West Side Lighting Co., and later became treasurer of the new concern. He continued as treasurer of the company through the numerous consolidations and mergers which brought into organization the Southern California Edison Co. of today. He became vice-president in charge of corporate contracts and documents in July 1925. Mr. Percey, known affectionately as "Major" to a wide circle of business acquaintances and friends, is a native of Hoosic, N. Y., where he was born in 1865. He began his business career in New York and later went to Philadelphia where he was connected with the Pennsylvania Railroad. He came to California in July 1896, intending to stay only six months, but at the behest of his friend, Senator George H. Barker, who was president of the West Side Lighting Company, Mr. Percey joined that organization and remained to become an outstanding electric utility officer.

Mr. Pearson, who is widely known as "Uncle Ben," directed much of the service expansion of the Edison company's predecessor organizations. He was general superintendent of the Edison Electric Co., the Southern California Edison Co. after 1909, and in 1917, when the Edison company consolidated with the Pacific Light and Power Co., he became superintendent of the di-

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JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.

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Fog Type Insulators

Are available in Suspension, Multi-part and One-Piece pin type and Switch and Bus type designs.

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Safety — Strength and Lasting Economy

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vision comprising southern California. On April 15, 1921, Mr. Pearson was appointed manager of operation and in January, 1925, he was appointed to his present office of manager of industrial relations. Mr. Pearson was born in Cowley, Middlesex County, England, on Sept. 16, 1867. He has taken a leading part in many southern California civic and welfare affairs. His affiliations include: vice-chairman and chairman of the executive committee, American Red Cross; president, board of trustees, Whittier State School; president, bureau of vocational service, Los Angeles, and vice-chairman church co-operation committee, Los Angeles Community Chest.

Pepco Writes Down Stock Values

A write-down in the value of the common and second preferred stock of the Portland Electric Power Company, owner of Portland General Electric Company and Portland Traction Company, creating eight million dollars in capital surplus was voted by the stockholders last month and given effect by amendments filed with the state corporation department Jan. 5. The common stock with a former par value of $20 was given a $1 par, and the second preferred stock was written down from $100 to $1.

Practically all of both these issues is owned by the parent company, Central Public Service Corporation. One hundred thirty-eight thousand shares of common, 65,000 shares of second preferred were affected. Capital surplus thus created is being used in adjusting downward the value of various securities of affiliated companies held in Pepco's portfolio to bring the book value of these investments down closer to their actual value.

▼

Commission to Study Bonneville Problems

Division of cost of Bonneville dam and power development on the Columbia River near Portland, Oregon was the first item receiving consideration by the Bonneville Dam Commission appointed by the governor of Oregon pursuant to legislative action last month. The commission is to report at the next legislative session a program for the development of the full use of Bonneville power. The commission, immediately after organizing, decided to contend for a 50-50 split of the cost as between power and navigation on the ground that the lower the cost allocated to power development, the lower would be the power rate that could be established.

The commission consists of two senators and two representatives from the state legislature and three citizens chosen at large. D. C. Henny, nationally known consulting engineer of Portland, one of the members-at-large, was chosen chairman, and Amedee M. Smith, another at-large member also of Portland, vice-chairman. John H. Lewis, a member of the commission from the house of representatives, was made secretary.

▼

Contract Cancelled For Street Lighting

Cancellation of the street lighting contract between the city of Spokane and the Washington Water Power Company has been authorized by the city council in the belief that the city expects a new contract can be made on more favorable terms.

One year's notice is required to terminate the contract, which became effective in 1918 for an initial period of 10 years, with the provision that it was to be carried from year to year until cancelled. The contract provided that the city maintain a minimum of 1,410 arc lights at a cost of $37 each annually and provided that the city pay one-third of the cost of installing new lights.

The notice of cancellation was served to pave the way for changes that may result from the street light survey that is to be made by the city this spring and the action is believed to have been influenced by the investigation into street lighting costs in Washington cities, now being conducted by the Department of Public Works.

WHERE TO BUY . . . IN THE WEST

PACIFIC Guy Strand

Made from

Copper Bearing Steel

No known failures in nine years

PACIFIC WIRE ROPE CO., LOS ANGELES

"CRUCIBLE *Copperbond*"

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Made by the "Controlled Molten Welding Process"

Easy Driving — Long Life — Copper Welded to Steel

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Fabricated in California by the Kortick Mfg. Co. from Genuine "Crucible Copperbond" Hot Rolled Rods, produced by Crucible Steel Co. of America. Distributed on the Pacific Coast by

MAYDWELL & HARTZELL, Inc.

Underground Transmission Without Conduit

Note the air and moisture proof flexible coverings. Sealtite represents a distinct advance in parkway cable construction. It is more pliable than any other underground cable . . . and costs are considerably lower.

Write for booklet offering suggested uses and explaining long life.

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Parkway and Airport Cable with Maximum Flexibility by

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LOS ANGELES SAN FRANCISCO

New Tax Basis for California Utilities

Work of assessing all public utilities for taxing purposes under the Stewart-Riley plan, adopted at the last session of the California Legislature, has been undertaken by the newly formed valuation division of the State Board of Equalization.

Under the new set-up utilities will be taxed on the same basis as any other business enterprise instead of upon the basis of gross revenues as heretofore. Prior to passage of the new measure utilities were freed from local taxation as the gross income tax was paid to the state. The work of evaluating the properties for assessment purposes is under the direct supervision of A. G. Mott, former chief engineer of the California Railroad Commission, and John C. Cooper, former valuation engineer of that body.

It is estimated that approximately $1,000,000,000 will be added to the assessment rolls, as public utilities own approximately one-sixth of the total assessable property in the state. A report to the legislature showed that utilities have been paying approximately $1.54 for every $100 of assessable property through gross income taxes and it is estimated that they will now pay an average of $1.85, this figure being based on the varying tax rates of California counties.

Sacramento Seeks P. G. and E. Valuation

Agitation for a formal valuation of the gas and electric distribution systems of the Pacific Gas and Electric Co. in Sacramento has been started by the mayor and members of the city council. This action followed receipt of estimated valuations from engineers of the State Railroad Commission.

These showed the electric distribution system to be worth $6,987,155 and the gas distribution system as worth $3,216,000. The commission estimated that complete valuations would cost $35,000 and $25,000 for the electric and gas systems respectively. Funds for undertaking valuation proceedings looking toward ultimate condemnation cannot be made available until 1935 since the 1934 city budget has been established and approved.

▼

¶Installation of a floodlighting system at the Royal Athletic Park, Victoria, B.C., at an approximate cost of $10,000, will probably be undertaken early in 1934 as the result of the filing of a proposal with the Victoria City Council.

FACILITIES

THROUGHOUT a most distressing economic period—and facing the probability of comparatively few opportunities for building new hydraulic equipment, this company has maintained its organization practically intact. Its energies have been devoted largely to study of plant re-construction whereby greater economies may be realized in existing power developments. As a result, a number of the older hydraulic units have been rehabilitated, increasing power output, reducing operating hazards, lowering operating costs and effecting other economies at very small cost.

The experience of Pelton engineers in modernizing the older power units, as well as specific information concerning results attained, is readily available to utility engineers.

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Electrical Photometrical, Chemical and Mechanical Tests. Inspection of Materials and Apparatus at Manufactory
80th St. and East End Ave., New York

ARTHUR R. KELLEY
CONSULTING ENGINEER
Reports and Valuations, Public Utility Industrial Properties
Edison Bldg. Los Angeles

THE J. G. WHITE ENGINEERING CORPORATION
Engineers—Contractors
Oil Refineries and Pipe Lines, Steam and Water Power Plants, Transmission Systems, Hotels, Apartments, Office and Industrial Buildings, Railroads.
43 Exchange Place New York

Coast Firms Win Refrigeration Prizes

Pacific Coast and Mountain States electric refrigeration dealers and power companies figured conspicuously in the prize awards in the Christmas holiday window display contest sponsored by the National Electric Refrigeration Bureau during the recent holiday season.

In the class for dealer windows of more than 100 sq. ft. in area the first prize of $100 was won by the department store of Tull & Gibbs, Spokane, Wash., while honorable mention in the same class was awarded to Broadway Department Store, Inc., of Los Angeles, and Powers Furniture Co., of Portland, Ore.

Southern Colorado Power Co., of Pueblo, Colo., was awarded first prize of $100 in the class for central station windows of more than 100 sq. ft. in area, with honorable mention accorded Idaho Power Co., of Twin Falls, Ida.

In the class for dealer windows of less than 100 sq. ft., Zion's Cooperative Mercantile Institute, of Salt Lake City, won honorable mention.

With a total of 340 entries, almost equally divided between the dealer and central station classes, the contest was the largest and most successful ever sponsored by the bureau. Entries were received from almost every state in the Union, and the judges, all men of wide experience in such work, pronounced the quality of the exhibits as unusually high.

▼

Power Official Named to Education Board

J. R. Gabbert, former newspaper editor and at present advertising and real estate agent of the Southern Sierras Power Co., has been named to the California State Board of Education. Mr. Gabbert was for many years editor of the "Riverside Enterprise" and is the founder of the "California Citrograph." In addition, he served as president of the California Newspaper Publishers Association for two terms. At one time he was real estate commissioner for California.

He is an alumnus of the University of California and a member of its Alumni Council. His appointment follows many years of activity in connection with the state's educational system, during which he participated in many conferences of educators and taxpayers in considering means for maintaining the system on a high standard and efficient basis.

▼

¶No lost-time accidents of any character among the 2,200 employees of the Puget Sound Power & Light Co. during October resulted from a "Be Careful" campaign conducted during that month. E. H. Worthen, company safety engineer, reported that only seven lost-time accidents occurred during the first ten months of 1933 on the utility's system.

What Every Electrical Merchandiser Should Know » » » » »

There are too many $1.98 sales made to customers really in the market for $10.00 to $20.00 worth of cooking equipment.

These customers are compelled by circumstances to look around for something smaller and less expensive than a range. What they want is a *minor appliance having major utility,*—more than a hot plate, less than a range—appliances like our new Everhot Compakts.

Selling this market means stepping up the unit sale and increasing profit. It means less servicing; greater customer satisfaction.

It is easier to merchandise to this market with a "group" of appliances like Everhot Compakts. Problems of display and salesmanship are practically solved by the character of the merchandise.

A "group" setting of Everhot Compakts, styled in the modern manner, porcelain enameled a delicate shade of green, with major utility plain as day, attracts patronage, makes sales.

Retail prices of Everhot Compakts are from $10.00 to $20.00. Customers in the market for real cooking utility recognize the values offered at these prices. You should recognize the sales possibilities of a complete display of Everhot Compakts.

Everhot

electrical appliances

The Swartzbaugh Mfg. Co.
Toledo, Ohio
Western Office: 1317 Willow St., Los Angeles

The Everhot Electric Cooker — champion sales performer of electric cooking appliances. It roasts and bakes and does waterless cooking without attention so well that it is in **regular daily use** wherever it is introduced.

Pasadena Municipal System Surveyed

Policies and principles governing the operation of the Pasadena Municipal Light and Power Department are contained in a report covering a 10-year budget survey just completed by Lester S. Ready, consulting engineer. The report includes a study of new business and revenue as well as an estimate of future capital expenditures.

Calling attention to the fact that Boulder Canyon power will probably be available by January 1, 1936, the report states that the present steam plant must practically be shut down if the city is to absorb its full obligation of Boulder power. Recommendations are made covering revenue allocations to pay for Pasadena's share of the cost of the Boulder Canyon power plant and the high-tension transmission line to the Los Angeles metropolitan area.

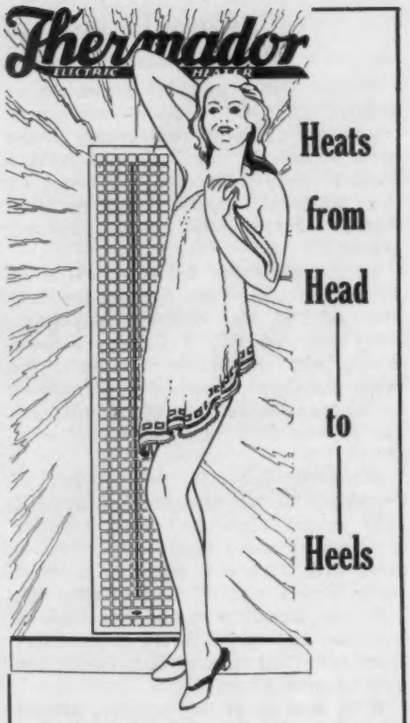
The report recommends against extension of the present underground distribution system and suggests instead that consumers be afforded relief through rate reductions. It recommends construction of two substations and proposes that construction of a third be postponed until 1937.

Estimated budget expenditures for 10 years from the fiscal year 1933-34 up to and including 1942-43 are set at $4,110,000. It estimates that a reasonable tax charge against the system would be approximately $125,000 per year which amount could be made available to the city treasury provided the present street lighting rate of 1 cent per kilowatt-hour be increased to 2½ cents.

Recommendations are made that the department "should at this time make effective rate reductions with the object of reduced cost to consumers and encouragement and development of increased use of department facilities." The report states that a reduction of approximately $125,000 per year appears to be justified and states that present commercial lighting rates should be revised. It recommends against any reductions of the present rate of 4.5 cents per kilowatt-hour for at least the first 30 to 40 kw.-hr. of domestic consumption per month and states that the full cost of service of the smaller consumers is not met by the present domestic schedules.

▼

¶All ornamental street lamps in Vancouver, B.C., are again giving illumination, and will continue on full operation throughout the next year, according to an announcement by C. H. Fletcher, city electrician. Early in 1933 as an emergency economy measure the city electrical department reduced ornamental lighting. During the weeks preceding Christmas, however, lighting was gradually restored to full operation and will be continued on this basis. The department has recently purchased and installed 5,000 lamps of 400 candlepower to replace all 600 c.p. lamps used in some sections of the city.



The greatest Bathroom Heater ever built. It's only nine inches wide but forty-eight inches high . . . with 2000-watts or less. Cash in on it now.

"Heats from Head to Heels"

Thermador Elec'l Mfg. Co.
116 Llewellyn Street, Los Angeles, Calif.

N C C

. . the dependable quality and performance of National Pyramid brushes stand out. Heavy and prolonged overloads must be carried. Cold, ice and snow increase operating difficulties. Peak demands occur in many industries.

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NATIONAL PYRAMID BRUSHES

meet these exacting demands and keep the wheels of industry turning . . .

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ARE ALWAYS AT YOUR SERVICE

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Carbon Sales Division, Cleveland, Ohio
Unit of Union Carbide UCC and Carbon Corporation
Branch Sales Offices:
New York Pittsburgh Chicago San Francisco

One Cent Rate for P.G. and E.

ONE-CENT electric energy will be available to domestic consumers of the Pacific Gas and Electric Co. who have approved range and water heating installations, as the result of a new domestic schedule ratified by the California Railroad Commission. Under the new schedule single family residences, including separately metered flats and apartments, where the consumer has installed a standard electric range and a standard electric water heater, all energy in excess of 170 kw.-hr. will be billed at 1 cent per kw.-hr.

The rate schedule specifies that the water heater be of the automatic storage type of adequate size to supply the consumer's hot water needs and be connected either through a double-throw switch so arranged that either the water heater or range, but not both at once, may be connected, or through an automatic load-limiting switch so arranged that the water heater will be disconnected automatically when the combined load of range and water heater exceeds 5 kw.-hr. The present domestic schedule calls for a service charge of 40 cents per month; 30 kw.-hr. (plus 5 kw.-hr. for each room in excess of 6) at 4½ cents; 140 kw.-hr. at 3½ cents and all excess use 1½ cents. Where the requirements as regards range and water heater are met under the new schedule, this last energy block will be available at 1 cent per kw.-hr.

Farrar Is President Of Coast Counties

H. L. Farrar was elected president of the Coast Counties Gas and Electric Co. at a meeting of the Board of Directors held on Jan. 5 in San Francisco. Mr. Farrar succeeds J. B. Wilson, who has been president of the company for the past five years and recently resigned to assume new duties in the middle west. In addition to his election as president of Coast Counties Gas and Electric Co., Mr. Farrar was appointed general manager of the Coast Counties, the Natural Gas Corp. of California and the West Side Natural Gas Co.

Mr. Farrar first came to the Pacific Coast in 1931 to join the staff of the Standard Management and Operating

H. L. FARRAR

Corp. Immediately preceding this he was for a number of years connected with the Western United Gas and Electric Co. and affiliated organizations as general gas superintendent, making his headquarters at Aurora and Geneva, Illinois.

For more than two years he has been vice president of the three companies he now heads, being actively engaged in their operation and management. He will continue to maintain his offices in San Francisco, but plans to spend a great deal of his time at Santa Cruz and in the territories served by the three operating companies. During this time he has also become well known among utility executives on the coast due to various activities with the Pacific Coast Gas and Pacific Coast Electrical Associations.

The general offices of the companies will remain in Santa Cruz and the various department heads will continue to maintain their headquarters there. These include A. E. Strong, general superintendent; R. N. Dreiman, general auditor; H. W. Edmund, sales manager, and Charles Grunsky, chief engineer.

▼

¶George L. Myers, for many years assistant to the president of Pacific Power & Light Co., Northwestern Electric Co. and Portland Gas & Coke Co., Portland, Ore., was recently elected assistant secretary of these companies to work under C. W. Platt, secretary.

Street Lighting Rates Under Attack

Formal hearings in the move of the Washington Department of Public Works to equalize street lighting rates in some 200 cities and towns throughout that state commenced last month with the introduction of testimony which described street lighting as "an extremely desirable source of revenue from a utility standpoint."

Reporting on findings of the department's engineers in a statewide investigation, J. W. Carey, chief engineer, testified that the rate of return as computed by his department for the Puget Sound Power & Light Co. for street lighting service in 1932 was 12.78 per cent, for The Washington Water Power Co. 21.5 per cent and for the Pacific Power & Light Co. 21 per cent. He stated that net earnings of smaller companies ranged as high as 65.71 per cent. The basis for computing these rates of return was not disclosed.

▼

¶John H. Knapp, vice-president of Norge Corp., visited distributors in Pacific Coast cities during the past month to outline the company's sales plans for 1934. He reported that during 1933 the volume of Norge sales increased 26 per cent over 1932. He announced several additions to the Norge line, including washing machines, a broilator, air-conditioning equipment and commercial refrigeration.

The LOWBOY is COMING

What everyone has been looking for

MANAGEMENT—Low investment—Additional load—lessened maintenance costs

ENGINEERS—New principle of switch construction specifically designed for intended use—New circuit arrangement giving proper balance of load—New control, greatest improvement in simplicity and accuracy. Less service and longer life

MERCHANDISERS—Consumer appeal—New selling features—Increased sales—Satisfied and enthusiastic customers

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SAVES

• TIME • LABOR • WATER • GAS

Unexcelled for Washing Capacity Without Sacrifice of Space

• Offers Dealers exceptional Sales Opportunity. Write today for particulars on exclusive profitable territory.

LITTLE GIANT, INC., Ltd.
4222 Hollis Street, Oakland, California

Portland Club Elects Weber President

At its annual meeting in January the Electric Club of Portland, Ore., elected Fred D. Weber president to succeed James B. Buman who brought the club through one of its most successful years. Mr. Weber is electrical engineer for the Oregon Insurance Rating Bureau. Mr. Buman is appliance sales manager of the Northwestern Electric Co.

Reports of officers at the annual meeting revealed that during the year membership was built up from 62 to 133; that several projects were undertaken and carried through for the industry; that a number of fine programs and entertainment features had been enjoyed, and that general interest in the club and its activities had grown.

Other officers elected were: first vice-president, George E. Boring, General Electric Supply Corp., second vice-president, Y. C. Bressie, Bressie Electric Co.; secretary, Vern M. Miller, North Coast Electric Co.; treasurer, J. B. Kilmore, Pacific Power & Light Co; sergeant-at-arms, Millard Seburn, A. & F Sales Corp.; and directors, Fred Zaugg, North Coast Electric Co., and R. A. Pearson, General Electric Supply Corp. Under the new constitution and by-laws that were established just before the close of the year, Mr. Boring, as first vice-president, will succeed automatically to the presidency on July 1 to serve the last six months of the current year.

▼

¶Possibility of the erection of an 85-mile transmission line from Coolidge Dam to Casa Grande, Ariz., is indicated by surveys initiated by the San Carlos Irrigation District. Power would be used to meet the needs of the district and its members. Estimated cost of the line is $200,000.

▼

¶Reduction of the wholesale power rate charged by the Puget Sound Power & Light Co. to the city of Port Angeles recently ordered by the Washington Department of Public Works has been declared invalid in a memorandum opinion by Judge D. F. Wright of the Thurston County Superior Court. The case will be taken to the Washington State Supreme Court for final determination, according to E. K. Murray, director of the Department of Public Works.

▼

¶Battery manufacturers, with a code signed, set up a code authority, among members of which are the following westerners: Denver, W. Bible, chairman, Western Battery & Supply Co.; and J. N. Rosholt, Electric Storage Battery Co. Los Angeles: C. H. Starr, chairman, Willard Storage Battery Co.; C. M. Dwyer, president, Affiliated Battery Industries Assn.; and C. G. Pyle, Pacific Coast Battery Mfg. Assn. San Francisco: P. F. Brown, chairman, USL Battery Corp.; D. H. Botchford, Hobbs Battery Co. Seattle: G. L. Sammis, Sunset Electric Co., chairman; and E. F. Osius.

▼

¶William W. Nielsen, former manager of the New Mexico Power Co. with headquarters at Santa Fe, died by his own hand in that city on Dec. 1.

▼ ▼ ▼

Barometer

Manufacturing industry in the West maintained in December the rate of activity of the preceding month, with a gain of 24 per cent over December, 1932, and the highest figure for that month since 1929. Progress during the past year, as shown by electrical energy consumption, has been somewhat less pronounced but rather more consistent than in other parts of the country.

After working up from the low point in mid-summer of 1932 the advance was checked in winter but resumed in April; at the peak in July the year's gain was 33 per cent. Fluctuations since that time have been unimportant.

As to specific industries, further progress in the metals and firmness in the stone, clay and glass group, combined with sluggishness last winter, brought activity in these industries to double that of December, 1932. Indicative of renewed activity in construction work, the change is probably the most significant one revealed by the industrial index numbers. It is supported by the figures on operations in lumber and its products.

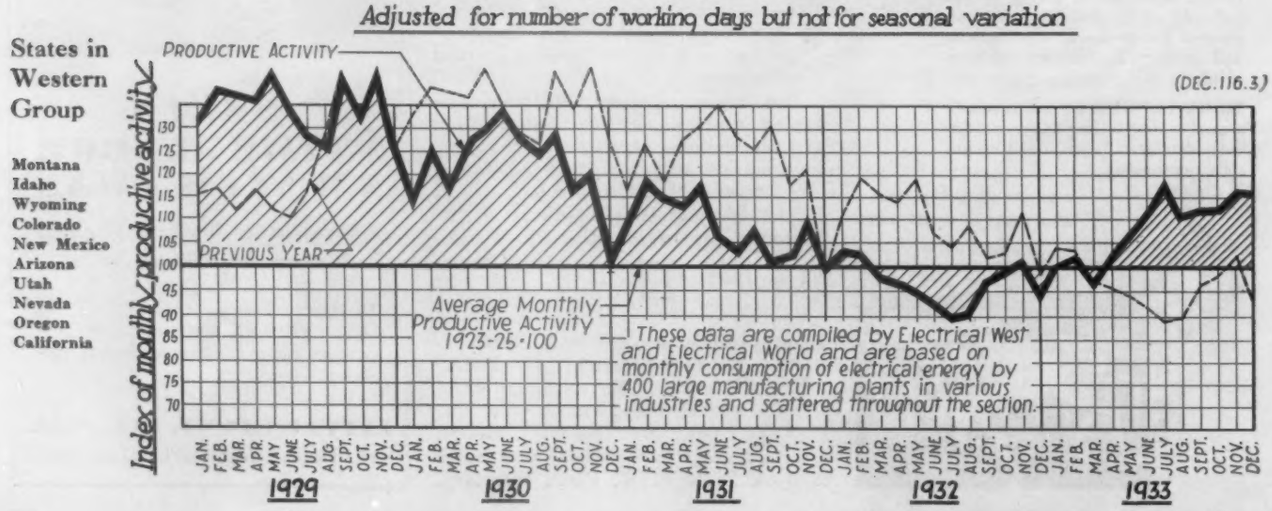
Other industries were less effected by the decline and have had less to regain, as for example the food industry, but even these in general show some advance over December, 1932.

Indexes of Manufacturing Activity in the Western States

(All figures adjusted for number of working days)

	Dec. 1933	Nov. 1933	Oct. 1933	Sept. 1933	Dec. 1932
All Industry	116.3	116.9*	113.3	112.8	93.8
Chemicals	90.3	86.0*	91.2	85.8	76.8
Food	118.5	118.9	111 3	119.3	113.2
Metals	80.1	76.3*	75.3	76.2	37.5
Lumber	156.7	162.8*	155.3	153.1	130.3
Paper	125.7	135.0*	145.4	138.2	125.5
Rubber	97.7	97.5	92.5	97.0	50.2
Shipbuilding	118.0	123.0	114.0	113.0	112.4
Stone	122.3	120.0*	118.2	119.6	64.5

* Revision.



¶ **Installed capacity** of British Columbia hydro-electric plants was approximately 750,000 hp., representing an invested capital of approximately $100,000,000 at the close of 1933. This compares with 559,792 hp. in 1929. Demand for additional electric energy in mining regions accounted for new installation during the past year. These included 1,050 hp. on the Goat River near Nelson; 1,000 hp. at Pioneer Mine; 500 hp. at Meridian; 1,200 hp. on Princess Royal Island, and 400 hp. at Wayside.

▼

¶ **Will T. Neill,** formerly assistant general manager of Pacific Power & Light Co., Portland, Ore., has been made manager of the rate department of this company, the Northwestern Electric Co. and Portland Gas & Coke Co., the three subsidiaries of American Power & Light Co. in Portland. This is a new department in these companies to conduct rate studies and prepare statistical material for regulatory bodies in Oregon and Washington, made necessary by the unusual amount of work created for the companies incident to hearings and investigations being carried on by the two state commissions.

▼

¶ **Federal Judge Jeremiah Neterer** has ruled in favor of the Washington Iron Works of Seattle in a suit brought by Albert E. Greene and the Greene Process Metal Co. of Missouri for alleged infringement of patent for use of an improved process of manufacturing steel in electric furnaces. The court held that the process sued on had been used both in this country and abroad for at least three years prior to the date on which patent was claimed to have been issued. The suit was begun Oct. 22, 1929, but due to the crowded court calendar decision was only recently announced.

▼

¶ **George H. Koch,** a member of the law department of the Southern California Edison Co., died Jan 11 from injuries received when he was struck by an automobile earlier the same day. He was struck near his home, while crossing a street to take a street car for his office. Mr. Kock, who was thirty-four years old, was born in Los Angeles. He attended Los Angeles High School and was graduated from the college of law, University of Southern California, with the class of 1920. He entered the law department of the Edison company in July, 1922.

▼

¶ **A membership drive** for the Portland Electric Club under the direction of Jack Reinke and Fred Zaugg brought in a total of 44 new members to the club's roster. Y. C. Bressie, a member of the committee, brought in 20 members. Others who participated were Ed Pearson, Harold Parrott, Fred Starrett, Harry Warren, Sid Ward, Bruce Kilmore, Glen Edwards, Sid Lowenberg and R. O. Johnson.

ICE, SLEET . . . . miles of line down . . . . Wire stocks inadequate . . . . Rush shipments imperative . . . . Then, look to Jobbers of *Crapo* Galvanized Wire and Strand!

You can depend upon them in every emergency . . . . and, they in turn, can depend upon us . . . . for, they know from long experience, that RUSH orders received by us in the morning are shipped before night!

Indiana Steel & Wire Co.
Muncie, Indiana

Galvanized Telephone Wire and Steel Strand

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INDIANA STEEL & WIRE CO. Crapo Galvanizing MUNCIE IND

Crapo
GALVANIZED PRODUCTS

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WHERE TO BUY IT IN THE WEST

This guide to products supplements The Manufacturers' Directory, published in the April, 1933 issue. Under the name of the appliance or equipment will be listed the advertisers of that product; by cross-checking with the listings in the directory, the local agents for any item thus can be found. If further information is desired, write to ELECTRICAL WEST, 883 Mission St., San Francisco, Calif. While the same care has been exercised in compiling this guide as in the directory, the publishers assume no responsibility for errors or omissions, but will make such corrections and additions as are requested within the restrictions set.

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Graybar Elec. Co., Inc.
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Morganite Brush Co.
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National Carbon Co., Inc.
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General Elec. Co.
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Fire Proof Wall Co.
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Ironite Ironer Co.
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Westinghouse Lamp Co.
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General Elec. Vapor Lamp Co.
Keese Eng'g Co.
Lamps, Sun
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Associated Oil Co.
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Weston Elec'l Instrument Corp.
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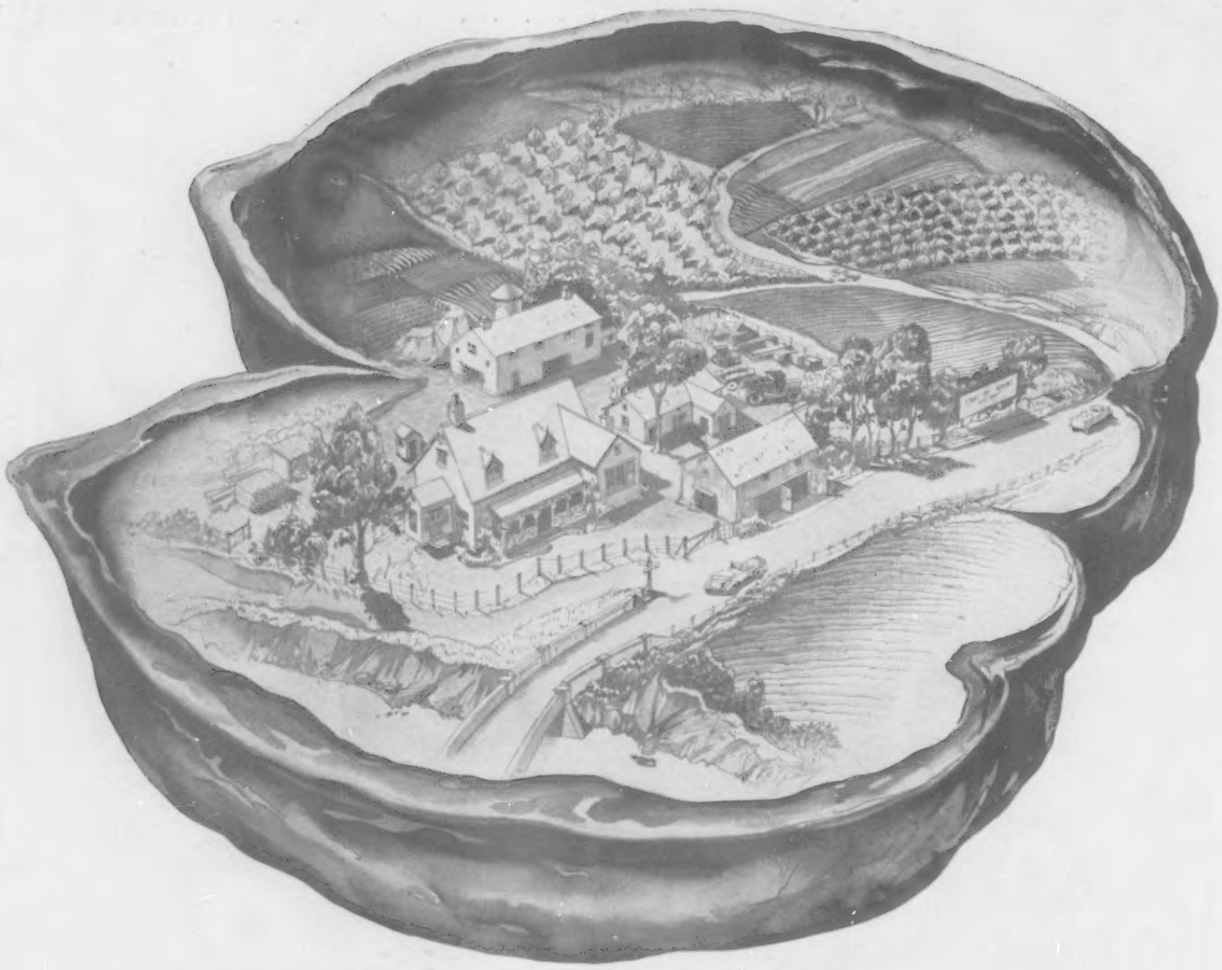

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